

DEPARTMENT OF HAWAIIAN HOME LANDS  
STATE OF HAWAII

May 24, 2016

**ADDENDUM NO. 2**

TO

PLANS, BID FORM, SPECIFICATIONS, CONTRACT AND BOND

FOR

**SCATTERED LOT IMPROVEMENTS FOR FIVE  
KEAUKAHA LOTS IN TRACT 1**

WAIAKEA, SOUTH HILO, HAWAII

IFB No.: IFB-16-HHL-014

**NOTICE TO ALL PROSPECTIVE BIDDERS**

This addendum is hereby made a part of the PLANS, BID FORM, SPECIFICATIONS, CONTRACT AND BOND for the SCATTERED LOT IMPROVEMENTS FOR FIVE KEAUKAHA LOTS IN TRACT 1, WAIAKEA, SOUTH HILO, HAWAII, and it shall amend the said contract documents as detailed within this Addendum document.

APPROVED:



Norman Sakamoto, LDD Acting Administrator  
Department of Hawaiian Home Lands

Date: May 24, 2016

Please detach, execute, and return immediately, the receipt below, to the Department of Hawaiian Home Lands, Hale Kalanianaʻole, 91-5420 Kapolei Parkway, Kapolei, Hawaii or transmit facsimile to (808) 620-9299.

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Receipt of Addendum No. 2 for the SCATTERED LOT IMPROVEMENTS FOR FIVE KEAUKAHA LOTS IN TRACT 1, WAIAKEA, SOUTH HILO, HAWAII, is hereby acknowledged.

Signed \_\_\_\_\_

Title \_\_\_\_\_

Firm \_\_\_\_\_

Date \_\_\_\_\_

**ADDENDUM NO. 2**

MAY 24, 2016

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**ITEM NO 1 PLANS**

Replace in its entirety the plans that are included in the original IFB with the Plans attached to **ADDENDUM NO. 2 (May 24, 2016)**. The following pages were effected:

Drawing Title	TMK:	Page No.
Keaukaha Tract 1 Improvements	(3) 2-1-021:072	C-2
		C-4
		C-5
		C-9
		C-3
	(3) 2-1-021:029	C-4
		C-5
		C-6
		C-8
		C-3
	(3) 2-1-021:100	C-5
		C-6
		C-11
	(3) 2-1-021:010	C-3
		C-6
		C-7
		C-8
		C-12
		C-13
		C-3
		C-4
	(3) 2-1-023:071	C-5
		C-8

**ITEM NO 2 BID OPEN DATE**

To accommodate this addendum, the bid open date has changed from 2:00 pm, May 23, 2016 to 2:00 pm, June 10, 2016. The location for bid submittal, stated in the IFB, remains the same.

# STATE OF HAWAII

## DEPARTMENT OF HAWAIIAN HOME LANDS

### SCATTERED LOT IMPROVEMENTS FOR FIVE (5) KEAUKAHA LOTS IN TRACT 1

LOT 58-B TMK 3-2-1-021:072

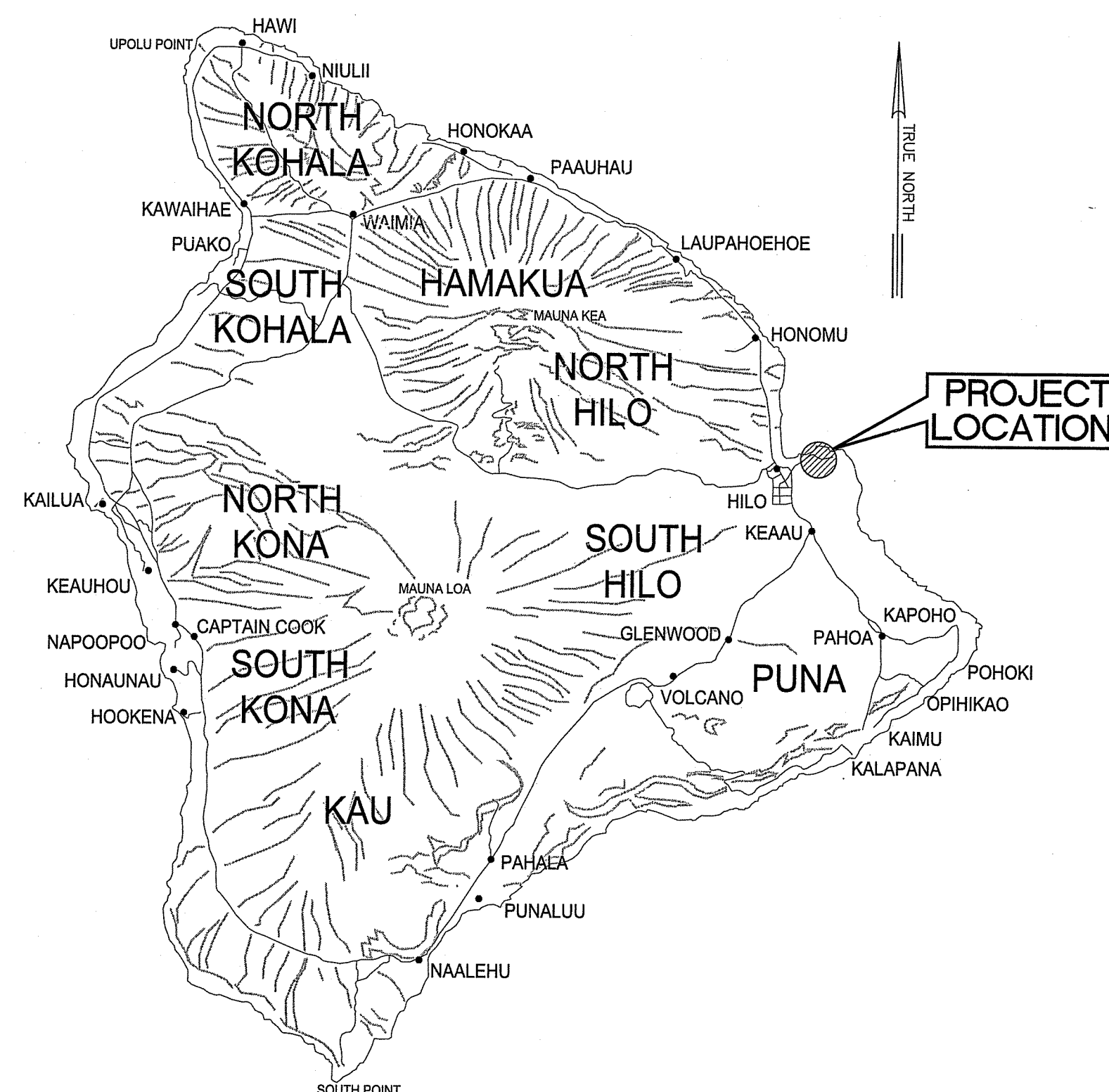
LOT 59-B TMK 3-2-1-021:029

LOT 63-A TMK 3-2-1-021:100

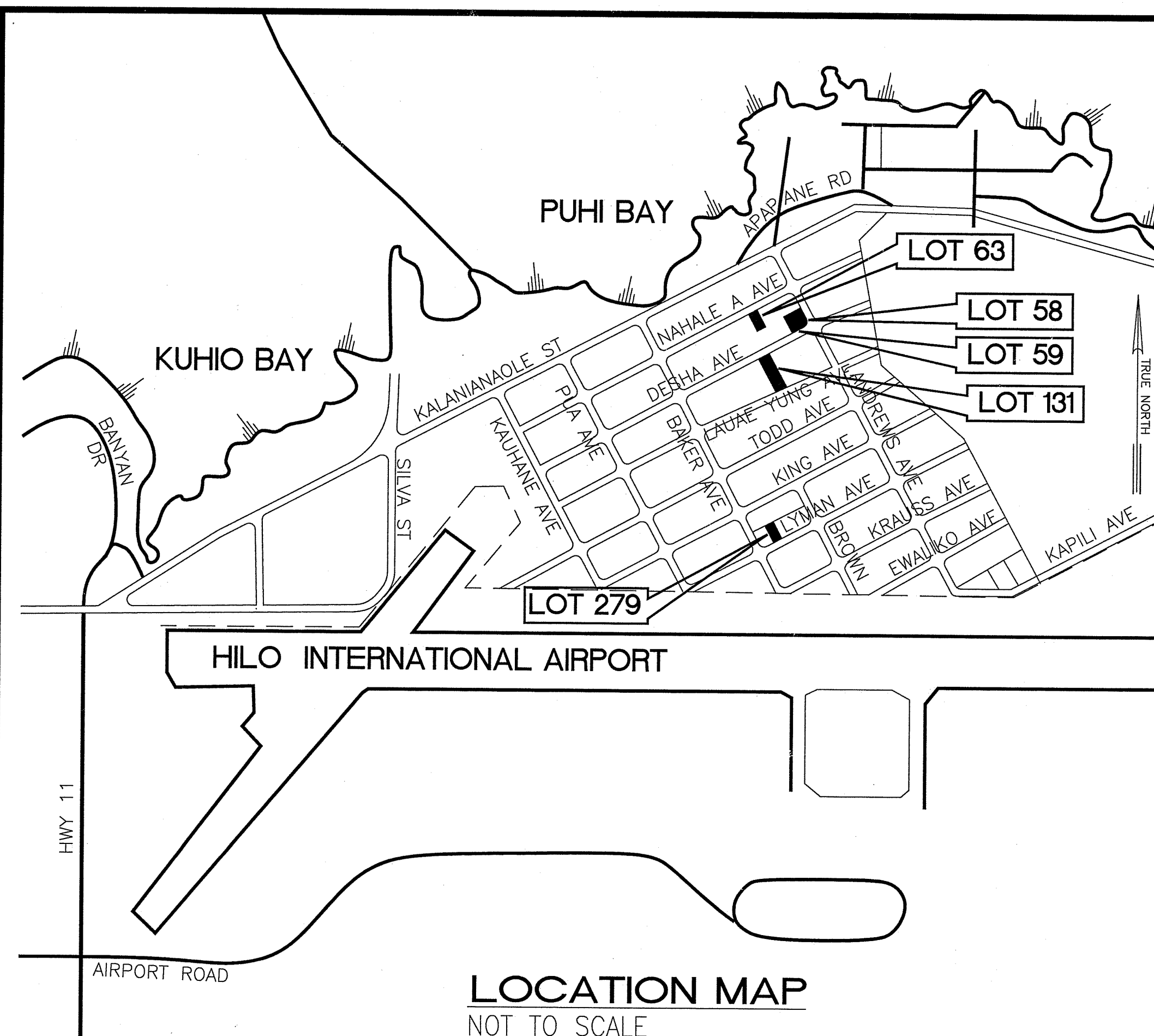
LOT 131 TMK 3-2-1-021:010

LOT 279 TMK 3-2-1-023:071

WAIAKEA, SOUTH HILO, HAWAII  
IFB-16-HHL-014



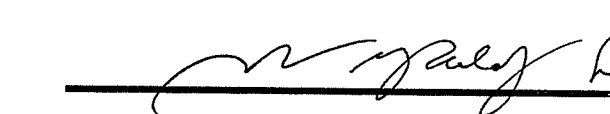
ISLAND OF HAWAII  
NOT TO SCALE



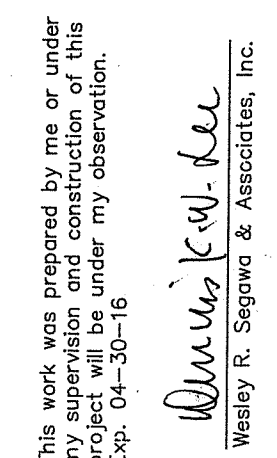
LOCATION MAP  
NOT TO SCALE

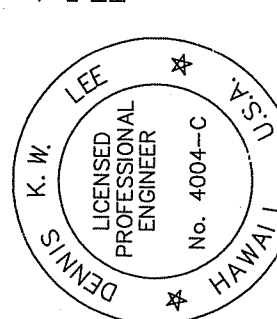
DESCRIPTION	I N D E X	
	PLAN SHEET NO.	
LOT 58.....	1 THRU 10	
LOT 59.....	1 THRU 9	
LOT 63.....	1 THRU 12	
LOT 131.....	1 THRU 14	
LOT 279.....	1 THRU 9	

APPROVED BY:

  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

DATE: 1/26/16

This work was prepared by me, or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-16  
  
Wesley R. Segawa & Associates, Inc.



**WRSA**  
Civil & Structural Engineers  
Wesley R. Segawa and Associates, Inc.  
Committed to Quality Performance & Value  
101 Silva Street, Suite 201, Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: SCATTERED LOT IMPROVEMENTS  
FOR FIVE (5) KEAUKAHA  
LOTS IN TRACT 1  
TITLE SHEET

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
SCALE: AS NOTED  
FILE No. W1302.44

DRAWING No.  
**T-1**

SHEET No.  
**1**  
OF 10 SHTS.





# KEAUKAHA TRACT 1 IMPROVEMENTS

## LOT 58-B-1 and LOT 58-B-2

**LOCATION MAP**  
NOT TO SCALE

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>DRAWING NO.</u>
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	WATER NOTES & DETAILS	C-2
4	WASTEWATER COLLECTION NOTES	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	SANITARY SEWER DETAILS	C-7
9	EROSION CONTROL (BMP) PLAN	C-8
10	DIMENSION PLAN	C-9

  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

  
MANAGER, CHIEF—ENGINEER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII *G.V.*

DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII

DATE: \_\_\_\_\_

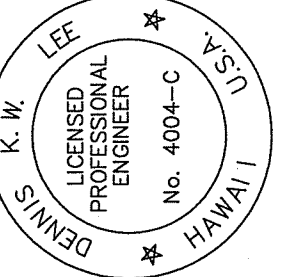
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This work was prepared by me or under my supervision and construction of this project will be under my observation.

Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.

Wesley R. Segawa



KEAUKAHA TRACT 1  
IMPROVEMENTS  
PLOTS 58-B-1 AND 58-B-2  
TITLE SHEET

Project Title:

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No.  
T-1

SHEET No.  
1  
OF 10 SHTS.

GRADING NOTES:

1.

ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2.

THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
3.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
4.

ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5.

THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6.

FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7.

THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8.

NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
9.

FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10.

THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION:

0

CU. YDS.

TOTAL EMBANKMENT:

766

CU. YDS.

11.

THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

1.

UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
2.

ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
3.

CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
4.

ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
5.

ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
6.

RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
7.

CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMEENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

1.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
2.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
3.

THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
4.

FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
5.

THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
6.

THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
7.

ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
8.

A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
9.

NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
10.

NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
11.

EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
12.

ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
13.

NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
14.

SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

- A.

ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
- B.

IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
- C.

ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

1.

THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
2.

IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- A.

REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- B.

RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.
3.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.
4.

THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.
5.

STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

6.

DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

7.

SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

8.

INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

9.

PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

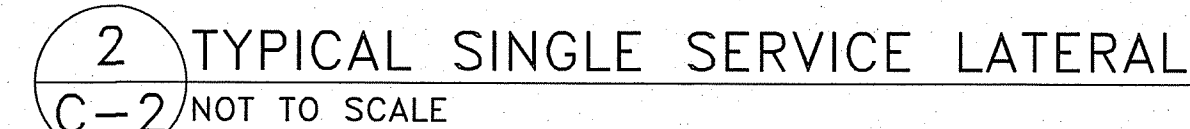
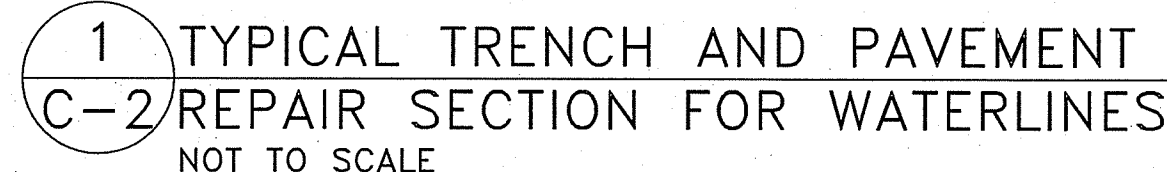
LEGEND:

A.C. ARV	ASPHALT CONCRETE AIR RELEASE VALVE	NIC	NOT IN CONTRACT
BOT. BW	BOTTOM BOTTOM WALL	OH	OVERHEAD
C.O. COCN. CRM	CLEAN OUT CONCRETE CONCRETE RUBBLE MASONARY	PAV'T PE	PAVEMENT PAD ELEVATION
D	DIAMETER OR DRAIN	S SDMH SMH SS ST. STA.	SEWER OR SPREAD STORM DRAIN MANHOLE SEWER MANHOLE SANITARY SEWER STREET STATION
E/ELEC. ELEV./E	ELECTRIC ELEVATION	TB TC TP TS TV TW	TOP OF BOX TOP OF GRATE TOP PIPE TOP STEM TOP VALVE TOP WALL
FFE F.H.	FINISH FLOOR ELEVATION FIRE HYDRANT	U.P. U.P./S.L.	UTILITY POLE UTILITY POLE W/STREET LIGHT
G.P.	GUARD POST/GUY POLE/GATE POST	W WM WMH WV	WATER WATER METER WATER MANHOLE WATER VALVE BOX
H	HEIGHT		
IG INV.	INVERT GRADE INVERT		
M.B. MH MON	MAIL BOX MANHOLE MONUMENT		

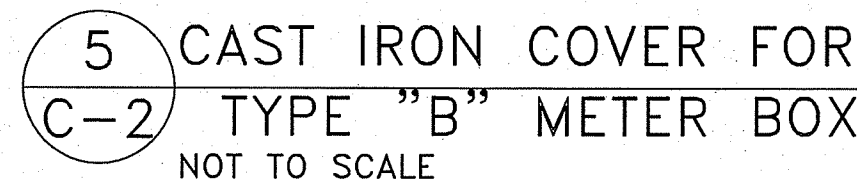
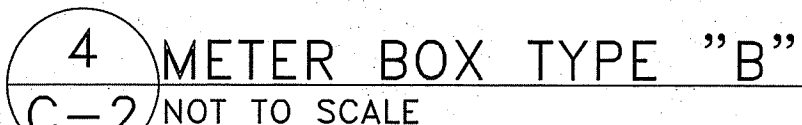
No.	DATE	DWG. CHK.	REVISIONS
△			
△			
△			
DATE			PRINTS TO



1. ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
2. ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
3. THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
4. ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
5. THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
6. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
8. ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 82, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
9. PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
10. METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
11. RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
12. SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
13. LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
14. WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
16. AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
17. BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



3 SCHEDULE OF COPPER FITTINGS  
C-2 NOT TO SCALE





WASTEWATER COLLECTION SYSTEM NOTES:

1. THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII (JULY 1972); THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, SEPTEMBER 1984 AND THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DULY AND LAWFUL PROSECUTION OF THE WORK
3. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY WRITTEN OTHERWISE
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS. ANY ADDITIONS, DELETIONS OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION.
5. INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWD'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL DETECTABLE NEW CONSTRUCTION. CALL THE WASTEWATER DIVISION AT 961-8338 AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.

a. WHEN AND AS OFTEN AS THE WWD DETERMINES THROUGH THEIR INSPECTION PROCEDURES, MATERIAL, EQUIPMENT OR WORKMANSHIP DO NOT MEET THE REQUIREMENTS, THE WWD WILL GIVE WRITTEN NOTICE OF THE NONCOMPLIANCE TO THE CONTRACTOR AND IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.

b. INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING OF THE PIPE AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
6. SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWAII HOLIDAYS. IT SUCH WORK DICTATES PERFORMANCE ON THESE NON-WORKING DAYS AND AFTER NORMAL HOURS (3:30 PM TO 7:00 AM) OF OPERATION THEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
7. ALL EXISTING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, IF DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED BY THE CONTRACTOR AND THE CONTRACTOR SHALL PAY ALL EXPENSES.
8. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
9. THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
10. AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY, AND UPON COMPLETION OF THE WORK, REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND.

SEWER SYSTEM REQUIREMENTS

1. SEWER MAIN PIPE AND FITTINGS:

a. ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT OR AN APPROVED EQUAL.

b. LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM. PIPE SHALL BE FITTED TOGETHER AND MATCHED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.

c. THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE BEFORE LEAVING THE WORKPLACE FOR THE NIGHT.

d. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FILLINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.
2. TRENCH, PIPE BEDDING, AND BACKFILL:

a. TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLAN.

b. PIPE BEDDING SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PLACED WITHIN TRENCH NOT LESS THAN 6 INCHES BUT NOT MORE THAN 8 INCHES IN COMPACTED THICKNESS, SHOULD PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE, AND SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY UNLESS OTHERWISE NOTED ON PLANS.

c. PIPE CUSHION SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PROPERLY PLACED A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT WHILE AVOIDING VERTICAL AND LATERAL DISPLACEMENT.

d. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY THE WWD ENGINEER.

e. COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET OR A FRACTION THEREOF. THE ENGINEER RESERVES THE RIGHT TO INCREASE THE FREQUENCY OF COMPACTION TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.
3. SEWER LATERAL PIPE AND FITTINGS:

a. NEW SEWER LATERALS AND CLEANOUT SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.

b. SEWER CLEANOUTS SHALL BE LOCATED IN THE *COUNTY RIGHT-OF-WAY* WITHIN ONE FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS,

c. THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18"X18"X18" CLASS B CONCRETE COLLAR REINFORCED WITH 1#3 REINFORCEMENT STEEL LOOP. REFER WWD STANDARD DETAIL WW-2. IN THE EVENT THAT THE CLEANOUT IS INSTALLED WITHIN A SIDEWALK OR SIMILAR AREA HAVING CONCRETE SURFACES, THE CONCRETE COLLAR IS NOT REQUIRED.

d. IF A CLEANOUT IS SUBJECT TO VEHICULAR OR ABNORMAL LOADING IT SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246W, MANUFACTURED BY SOUTH BAY FOUNDRY OR APPROVED EQUAL) AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. REFER WWD STANDARD DETAIL WW-4.

e. SEWER LATERAL CONNECTIONS TO AN EXISTING SEWER MAIN MAY BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE. ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORE ENTRY AREA ON THE MAIN SEWER PIPE. THE SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS 8 REINFORCED CONCRETE. THE REINFORCED JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" BEYOND THE SEWER SADDLE.
4. SEWER LINE ACCEPTANCE TEST:

a. ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.

b. LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.

c. AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.

i. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE WWD, A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.

ii. THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR CLEANING OF THE LINES TO REMOVE ALL DEBRIS PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE INSPECTION AND ANY SUBSEQUENT INSPECTIONS WILL BE SUBJECT TO CHARGES TO THE CONTRACTOR.

iii. THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.

iv. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND, ETC. THEN, MANDREL TESTING IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR.

v. CCTV INSPECTIONS WILL BE RECORDED IN VHS OR CDROM FORMAT. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.
5. FINAL PROJECT SUBMITTALS:

a. UPON FINAL PROJECT ACCEPTANCE SUBMIT TO WWD ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM AND TWO (2) COPIED SETS AND ONE (1) SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2009 VERSION AND (1) SET OF ELECTRONIC DRAWINGS IN ADOBE PDF FORMAT.

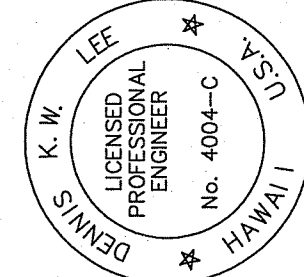
b. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

DIVISION CHIEF, WASTEWATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII


DATE

No.		DATE	DWG. CHK.	REVISIONS				
1	△	△	△					
DATE		DATE			PRINTS TO			

This work was prepared by me or under my direct supervision and to the best of my knowledge and belief, this project complies with the provisions of the Hawaii Engineering Law, Chapter 91D, Hawaii Revised Statutes, and I am a duly Licensed Professional Engineer, No. 4004-C, State of Hawaii, exp. 04-30-16



Wesley R. Segawa & Associates, Inc.



WRSA  
Wesley R. Segawa and Associates, Inc.  
Committed to Quality Performance & Value

Civil & Structural Engineers  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS

Sheet Title: LOTS 58-B-1 AND 58-B-2  
W.W.C. SYSTEM NOTES

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

DRAWING No.  
C-3

SHEET No.  
4  
OF 10 SHTS.

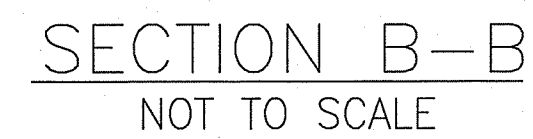
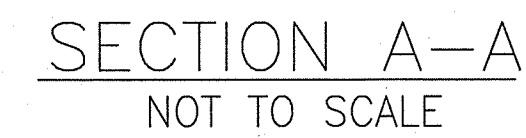




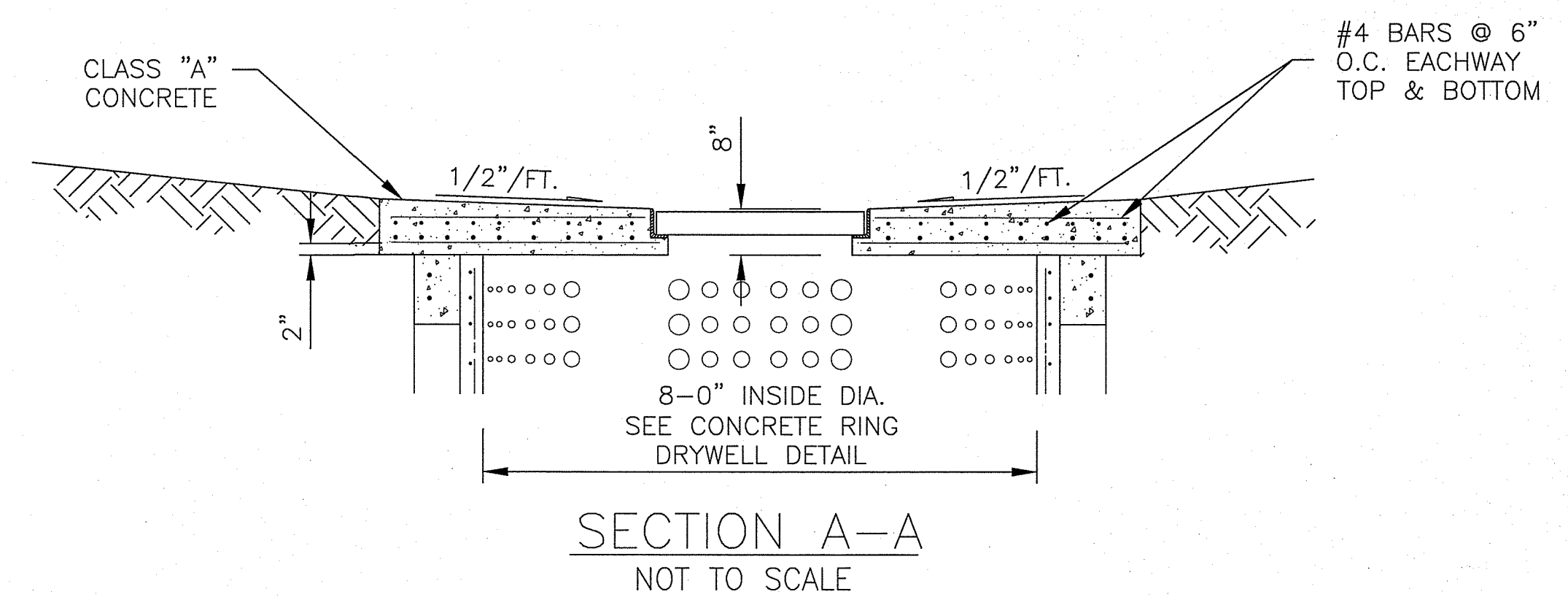
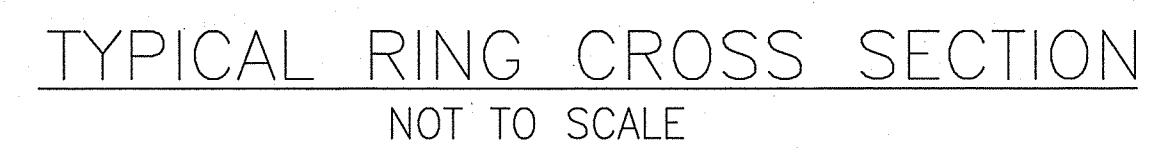
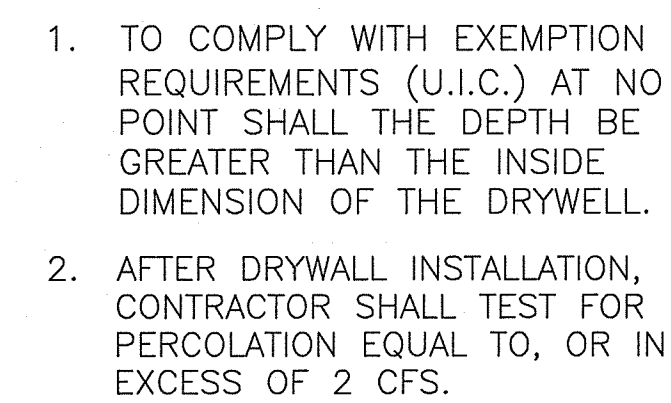






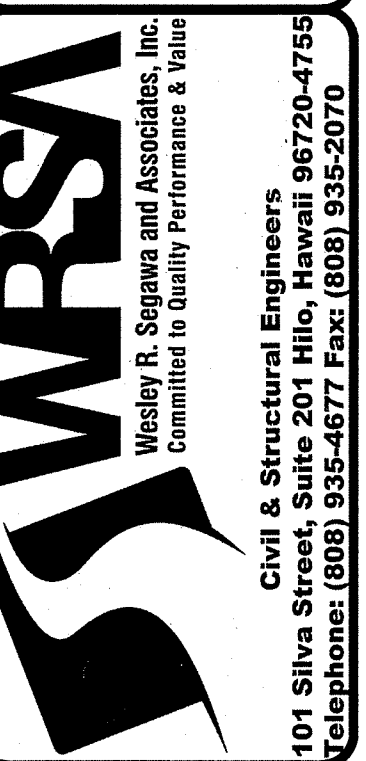
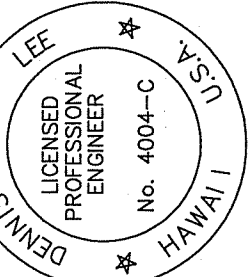



**DRYWELL GRATE DETAIL**  
 NOT TO SCALE



my supervision and construction of this project will be under my observation.  
Exp. 04-30-16

Wesley R. Segawa & Associates, Inc.



DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.44

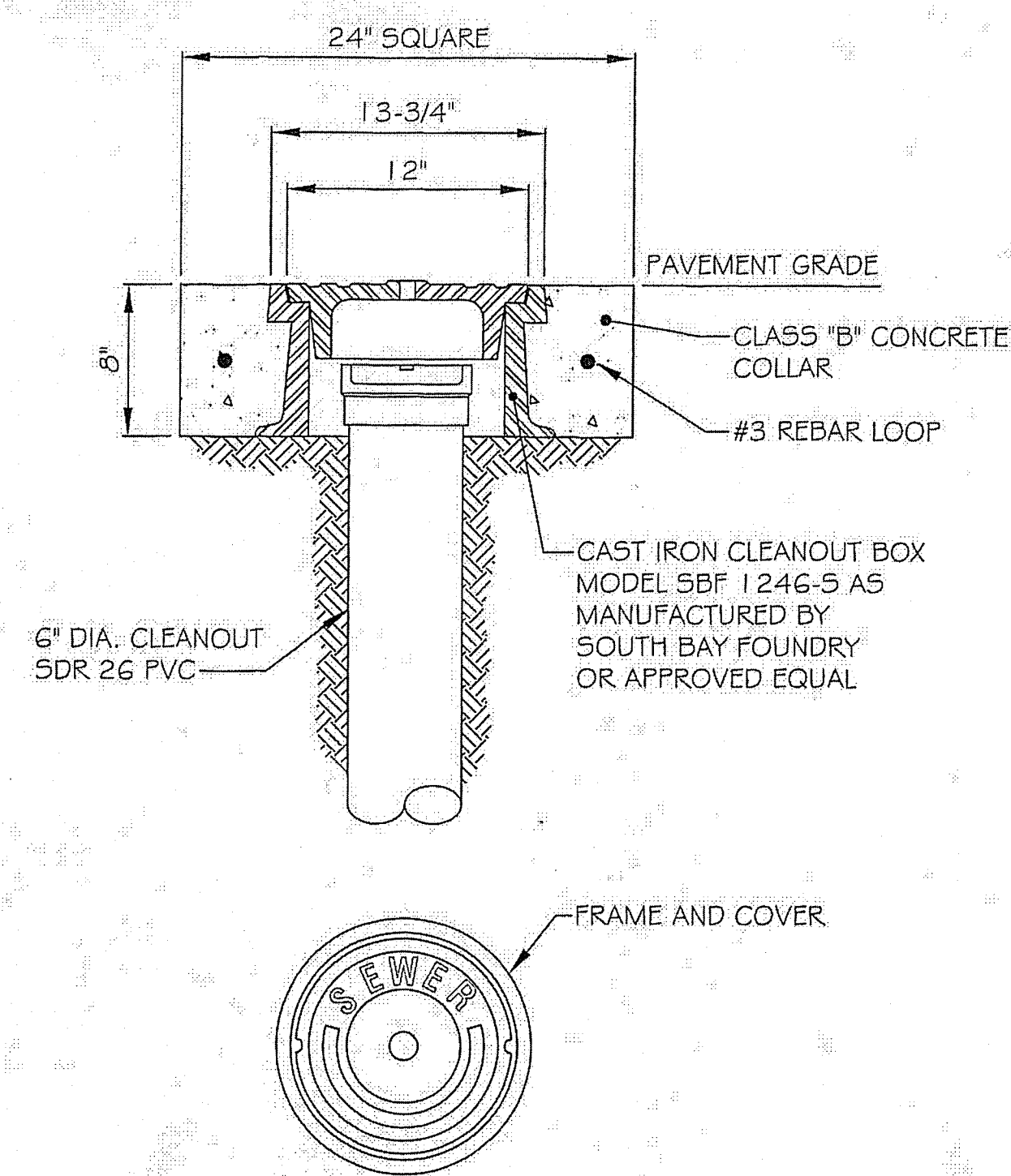
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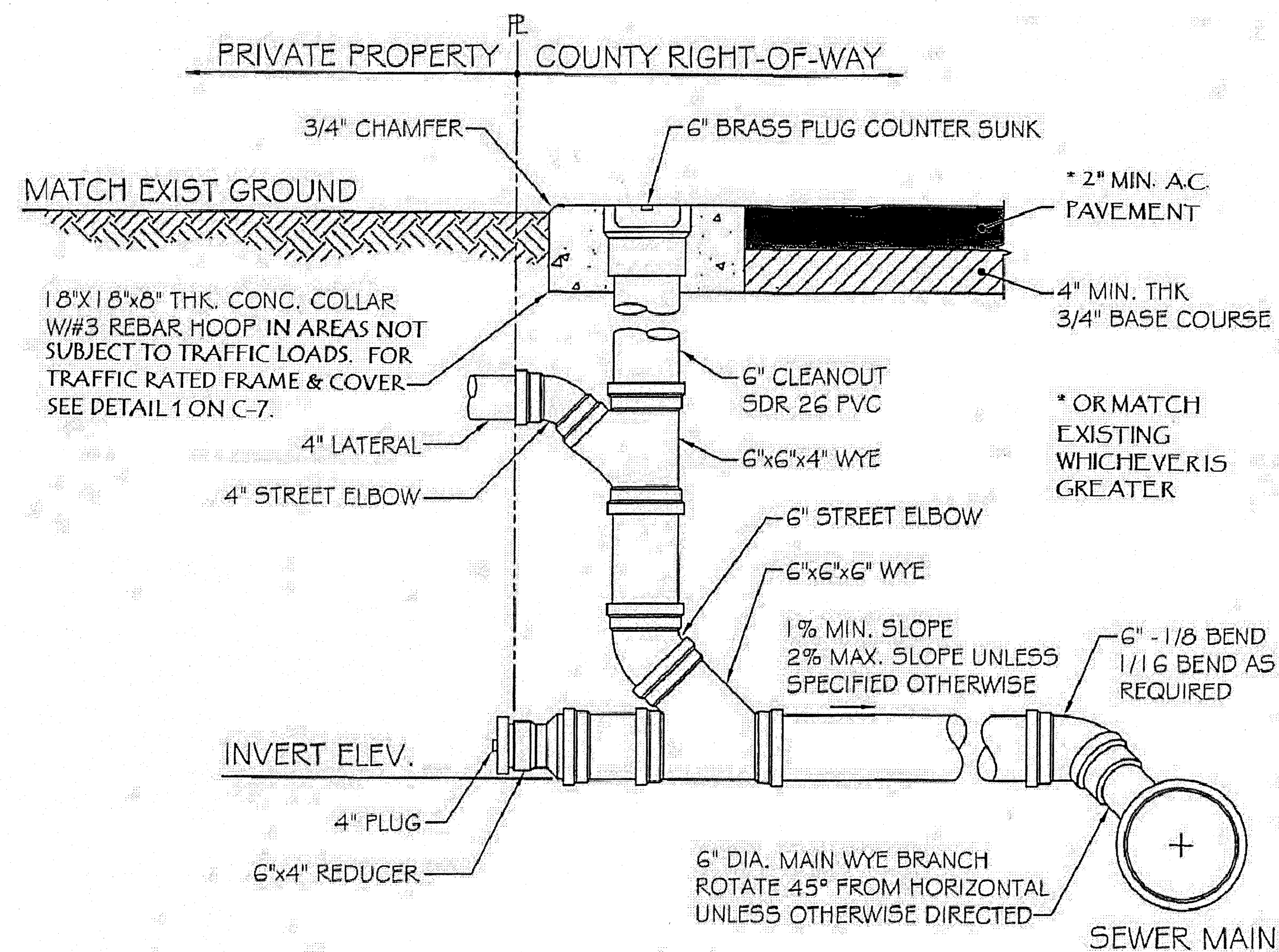
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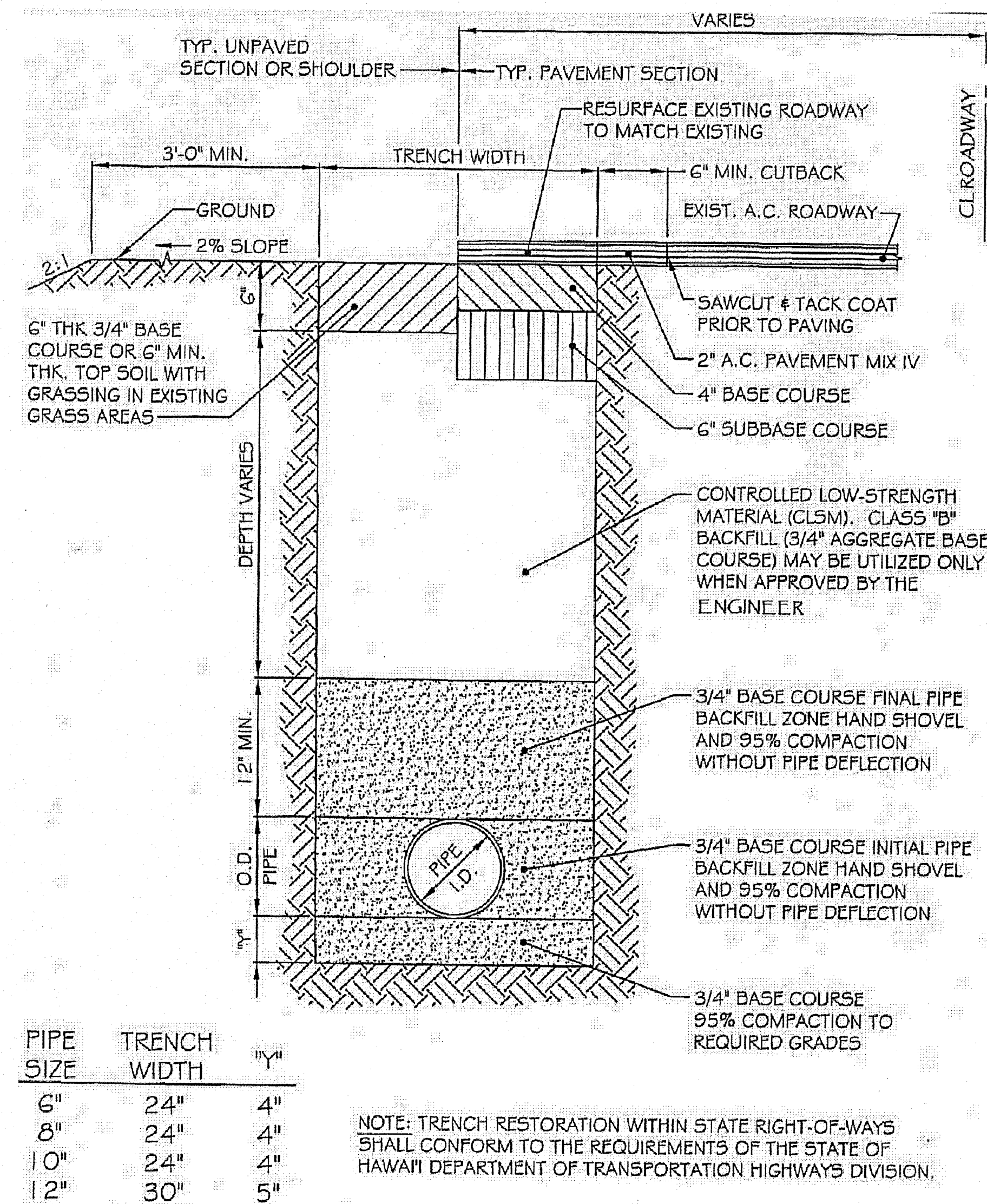
OF **10** SHTS.



1 TYPICAL TRAFFIC RATED FRAME & COVER  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE



2 TYPICAL LATERAL & CLEANOUT DETAIL  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE



3 TYPICAL TRENCH DETAIL  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE

DIVISION CHIEF, WASTEWATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

DATE

NO.	DATE	DWG. CHK.	REVISIONS
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This work was prepared by me or under my supervision and I am a duly licensed professional engineer in the State of Hawaii.  
Exp. 04-30-16  
Wesley R. Segawa & Associates, Inc.  
Wesley R. Segawa  
Professional Engineer  
No. 4004-C  
HAWAII

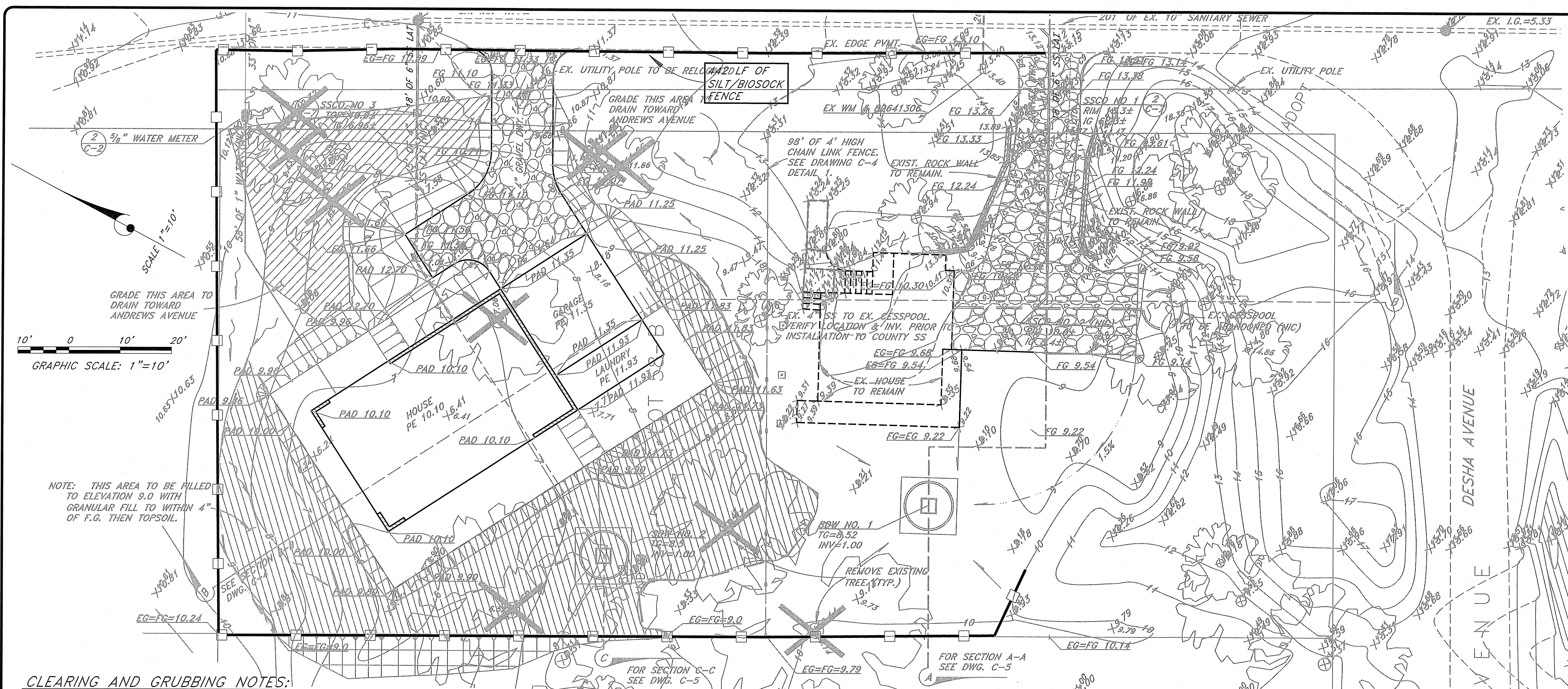
**WRSA**  
Wesley R. Segawa and Associates, Inc.  
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101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 58-B-1 AND 58-B-2  
Sanitary Sewer Details  
Sheet Title: SANITARY SEWER DETAILS

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
SCALE: AS NOTED  
FILE No. W1302.44

DRAWING No.  
**C-7**  
SHEET No.  
**8**  
OF 10 SHTS.



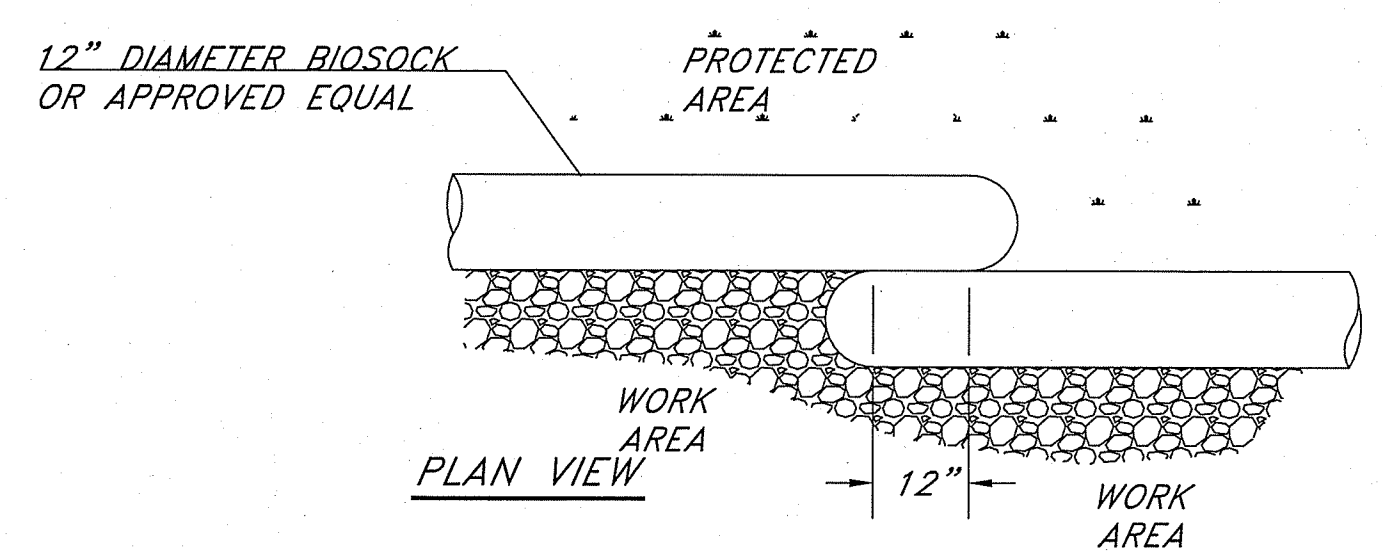


### CLEARING AND GRUBBING NOTES:

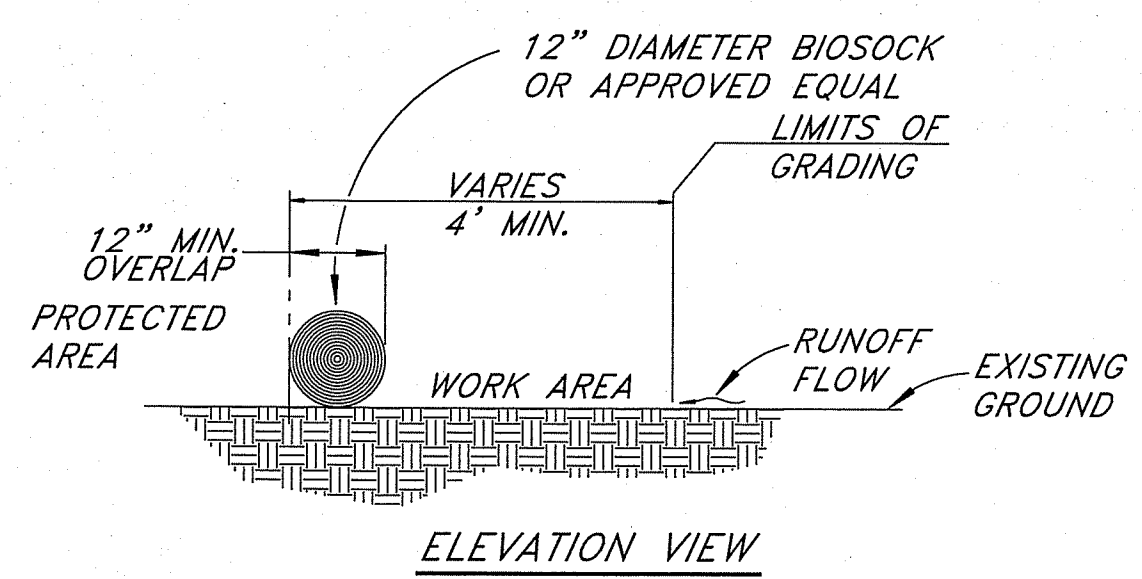
1. CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
2. CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
3. GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
4. DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
5. CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
6. LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
7. REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

### LEGEND:

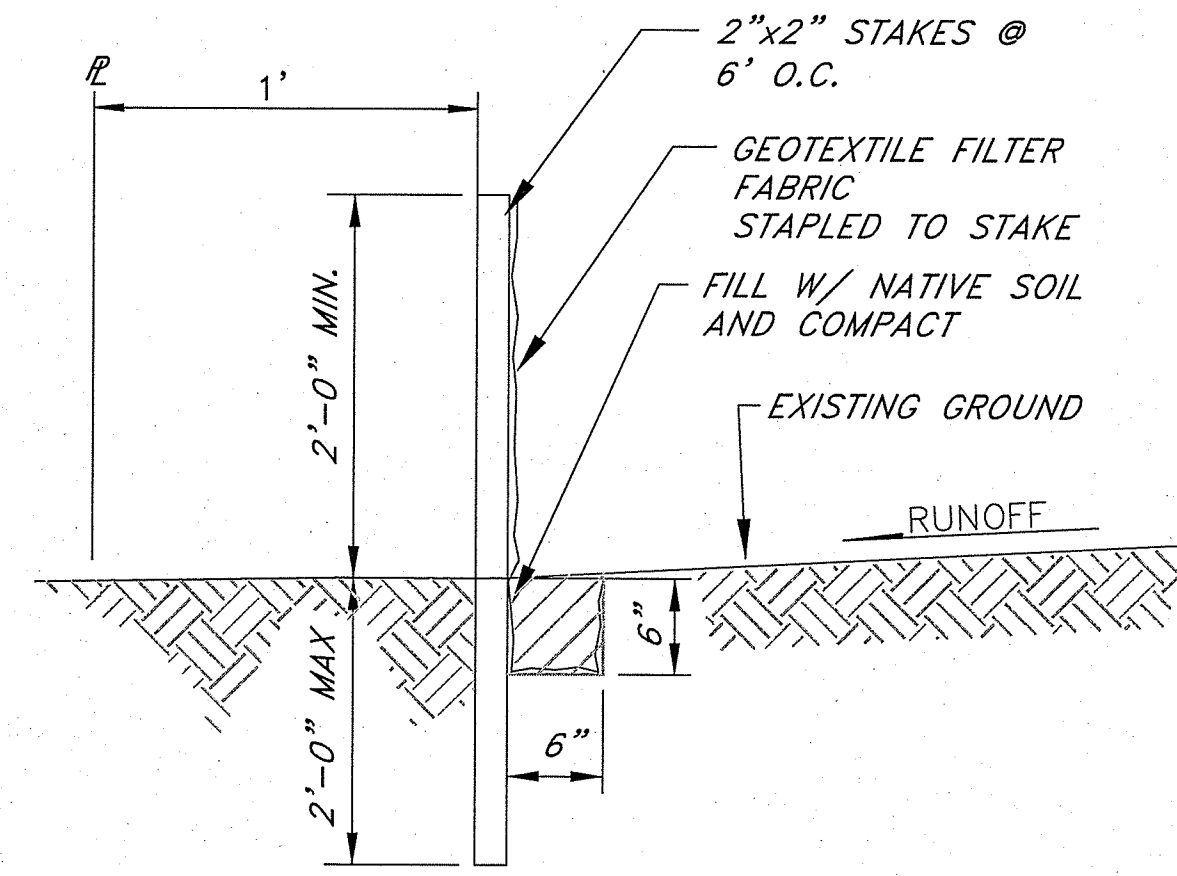
SILT FENCE/BIOSOCK



**BIOSOCK DETAIL (12" DIA)**  
NOT TO SCALE



**ELEVATION VIEW**



### SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.

AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

### SILT FENCE DETAIL

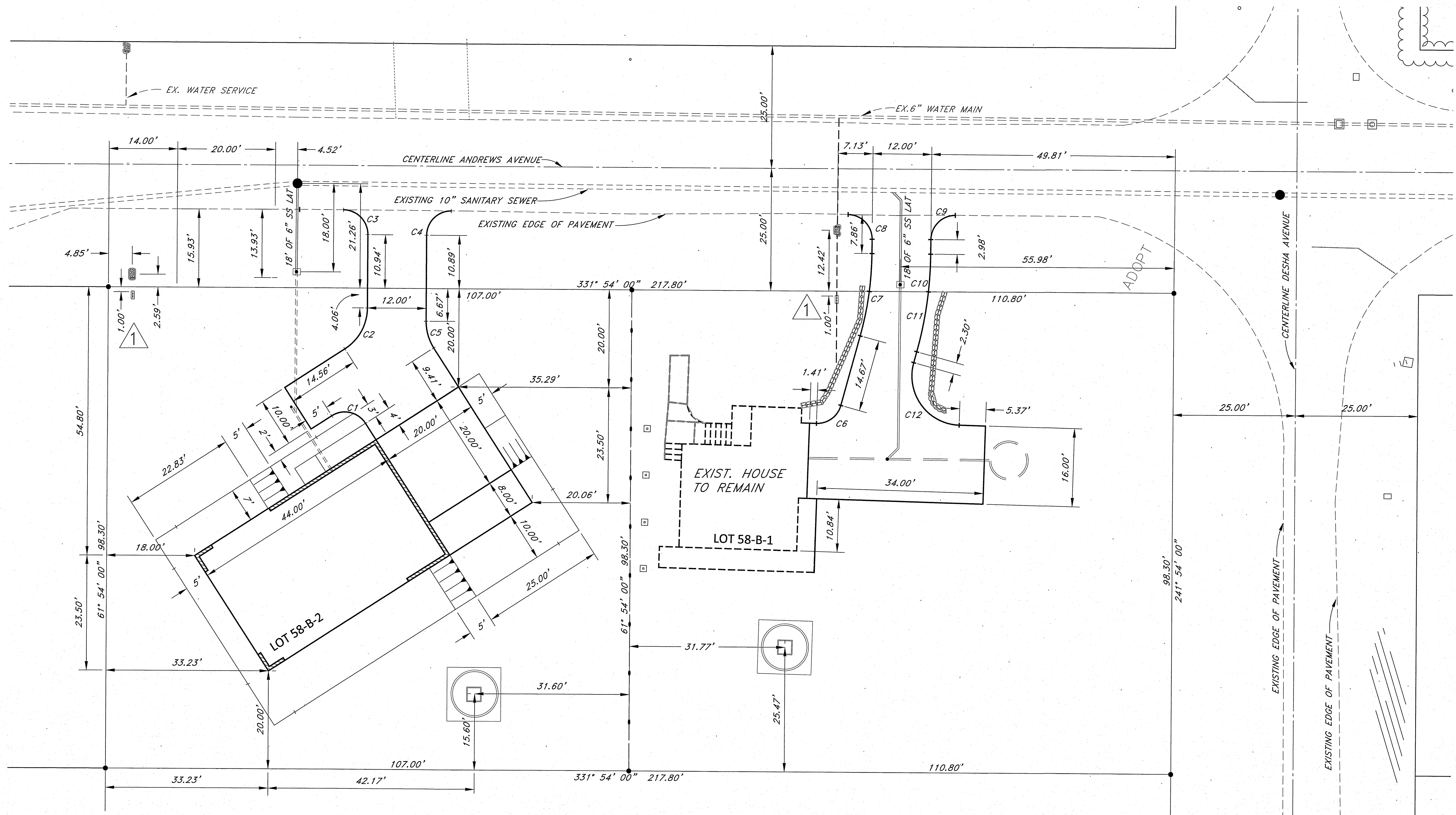
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### EROSION CONTROL NOTES:

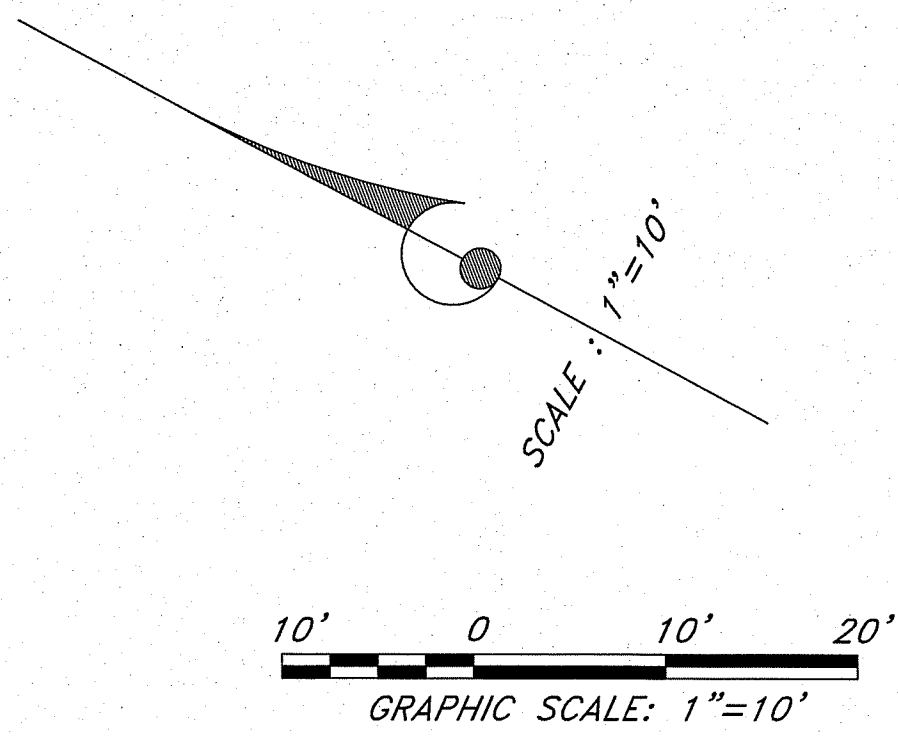
1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRONE TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

No.	DATE	DWG. CHK.	REVISIONS	
			DATE	PRINTS TO
This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer. Exp. 04-30-16 <b>10/11/16</b> Wesley R. Segawa & Associates, Inc.				
<b>WRSA</b> Wesley R. Segawa and Associates, Inc. Civil & Structural Engineers 101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755 Telephone: (808) 935-4677 Fax: (808) 935-2070				
Project Title: <b>KEAUKAHA TRACT 1 IMPROVEMENTS</b> Sheet Title: <b>LOTS 58-B-1 AND 58-B-2 EROSION CONTROL (BMP) PLAN</b>				
DESIGN BY: DRB DRAWN BY: DRB CHECKED BY: DL APPROVED BY: DL DATE: 2015 SCALE: AS NOTED FILE No. W1302.44				
DRAWING No. <b>C-8</b>				
SHEET No. <b>9</b> OF <b>10</b> SHTS.				





DIMENSION PLAN

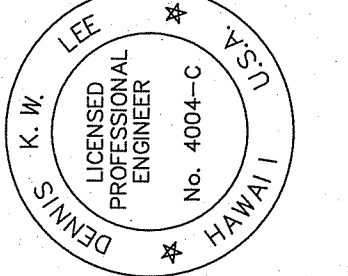


Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	N16° 02' 27"W	7.07
C2	9.96	10.00	57.06	S89° 34' 14"E	9.55
C3	7.84	5.00	89.87	N16° 57' 54"E	7.06
C4	7.87	5.00	90.13	N73° 02' 06"W	7.08
C5	5.75	10.00	32.94	S45° 25' 46"W	5.67
C6	6.65	5.00	76.23	S64° 43' 48"E	6.17

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C7	17.04	65.00	15.02	N69° 38' 43"E	16.99
C8	7.80	5.00	89.36	N17° 27' 27"E	7.03
C9	7.81	5.00	89.52	N73° 06' 10"W	7.04
C10	7.69	77.00	5.73	N64° 59' 59"E	7.69
C11	12.49	77.00	9.29	N72° 30' 28"E	12.47
C12	18.11	10.00	103.77	S25° 16' 12"W	15.74

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	2, 4, 5, & 9	DRB	INSTALL BACKFLOW PREVENTER
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This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-16  
Wesley R. Segawa & Associates, Inc.  
Wesley R. Segawa, P.E.



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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS  
Sheet Title: LOTS 58-B-1 AND 58-B-2 DIMENSION PLAN

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
SCALE: AS NOTED  
FILE No. W1302.44

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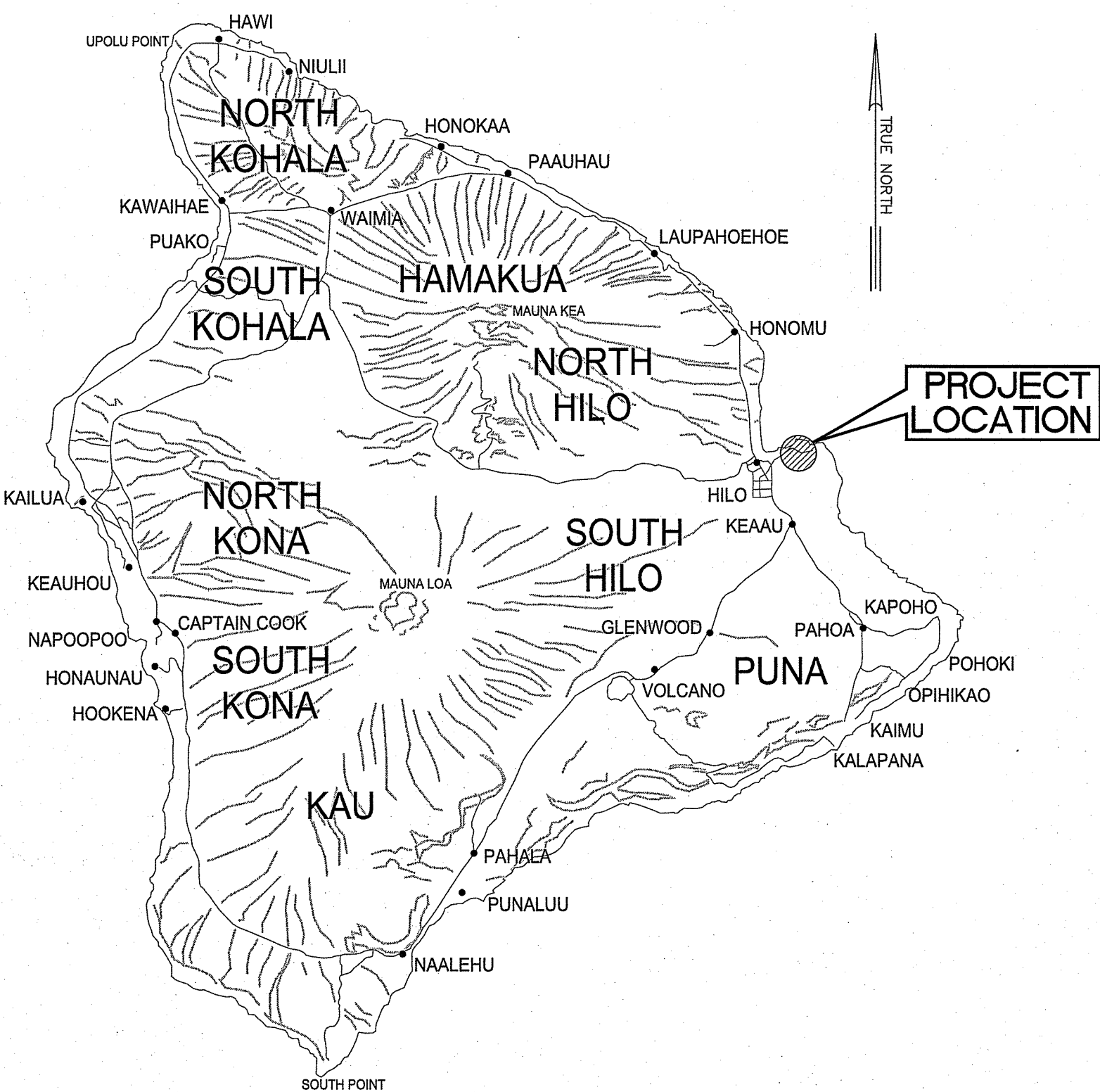
SHEET No. 10 OF 10 SHTS.

STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

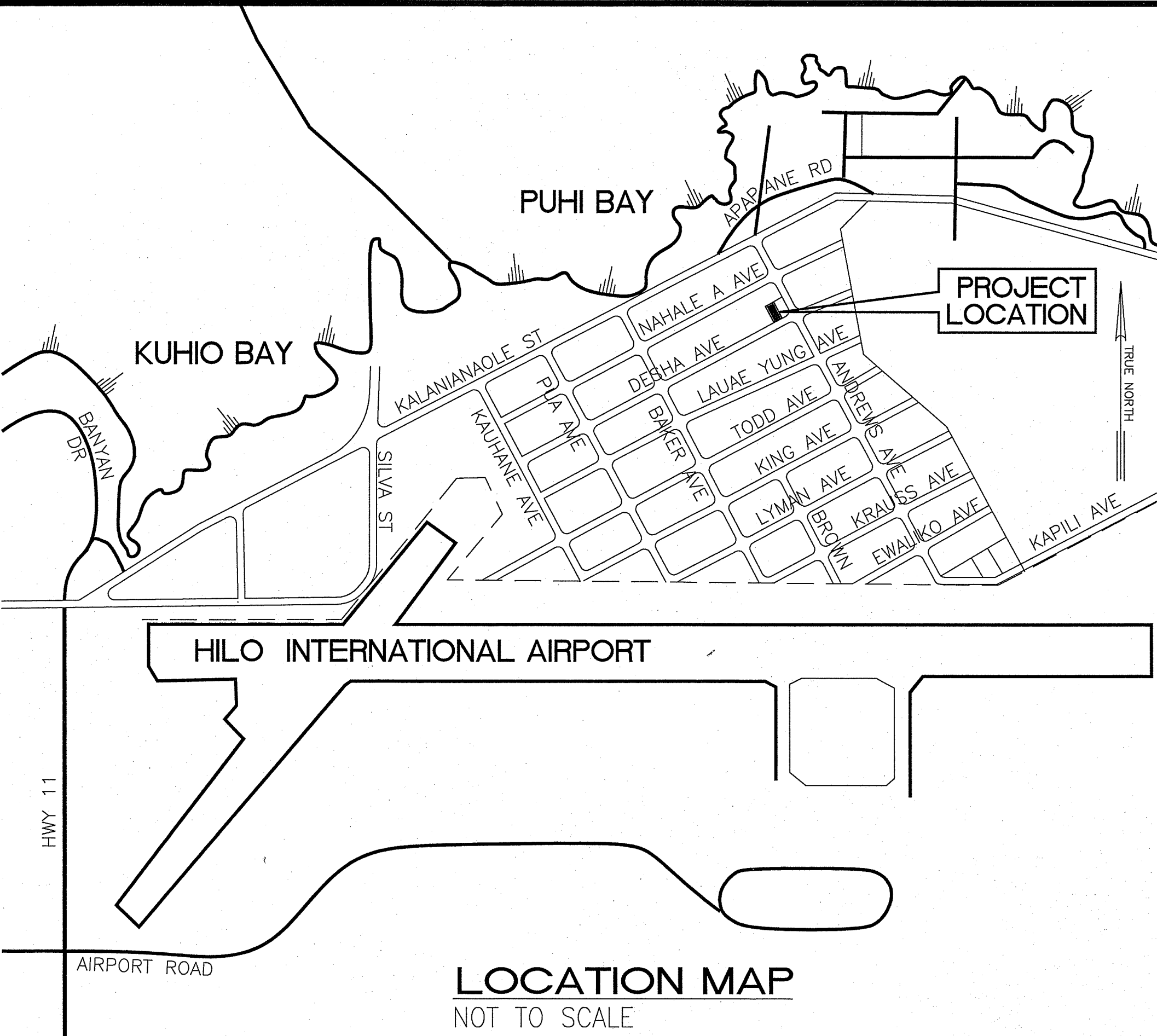
KEAUKAHA TRACT 1 IMPROVEMENTS

LOT 59-B-1 and LOT 59-B-2

WAIAKEA, SOUTH HILO, HAWAII  
TAX MAP KEY: (3) 2 - 1 - 021: 029  
IFB-16-HHL-014  
SUBDIVISION APPLICATION NO: SUB-15-001464



ISLAND OF HAWAII  
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LOCATION MAP  
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SHEET NO.	DESCRIPTION	DRAWING NO.
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES AND SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	EROSION CONTROL (BMP) PLAN	C-7
9	DIMENSION PLAN	C-8

APPROVED BY:

*[Signature]*  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII  
*[Signature]*  
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

DIRECTOR, PLANNING DEPARTMENT  
COUNTY OF HAWAII

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII

*[Signature]*  
DATE:  
*[Signature]*  
DATE:

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DATE:

DATE:

REVISIONS

No.	DATE	DWS	CHK

DATE

PRINTS TO

This work was prepared by me or under my supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. Exp. 04-30-16

*[Signature]*  
Wesley R. Segawa & Associates, Inc.

W. R. SEGAWA

LICENSED PROFESSIONAL ENGINEER

No. 4004-C

HAWAII

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 59-B-1 AND 59-B-2 TITLE SHEET

DESIGN BY: DRB

DRAWN BY: DRB

CHECKED BY: DL

APPROVED BY: DL

DATE: X

SCALE: AS NOTED

FILE No. W1302.44

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OF 9 SHEETS



GRADING NOTES:

1. ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
4. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5. THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7. THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
9. FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10. THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION: 0 CU. YDS.  
TOTAL EMBANKMENT: 842 CU. YDS.

11. THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

1. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
2. ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
3. CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
4. ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
5. ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
6. RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
7. CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
2. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
3. THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
4. FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
5. THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
6. THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
7. ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
8. A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
9. NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
10. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
11. EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
12. ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
13. NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
14. SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

- A. ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
- B. IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
- C. ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

1. THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
2. IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- A. REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- B. RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.
3. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.
4. THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.
5. STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

6. DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

7. SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

8. INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

9. PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COCN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TG	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

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UTILITY POLE SPECIFICATIONS AND NOTES:

MAXIMUM-200 AMP SERVICE

IT SHALL BE THE CUSTOMER'S RESPONSIBILITY FOR COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY GOVERNING AUTHORITY FOR ALL EQUIPMENT BEYOND THE POINT OF CONNECTION. THE CUSTOMER IS ADVISED TO USE THE SERVICES OF A QUALIFIED ELECTRICIAN TO ASSURE COMPLIANCE WITH ALL CODES AND REGULATIONS.

1. DESCRIPTION:

PERMANENT - MOBILE HOMES, CAMPS, WATER WELLS, AND ANY OTHER CONNECTION NOT CONSIDERED TEMPORARY.

TEMPORARY - CONSTRUCTION, SPECIAL EVENTS, ETC.

2. METER POLES ARE FURNISHED AND INSTALLED BY CUSTOMER. SPECIFICATIONS SHOWN ON THE DRAWING AND DESCRIBED HERE SHALL BE CONSIDERED MINIMUM REQUIREMENTS.

3. PERMANENT METER POLES MUST BE 20' (FEET) IN LENGTH AND BE SET 5' (FEET) DEEP. A PERMANENT METER POLE MUST BE A TREATED ROUND POLE WITH A MINIMUM TOP DIAMETER OF 5" (INCHES) OR A TREATED 6" X 6" (INCH) POLE.

IT WILL BE THE RESPONSIBILITY OF THE CUSTOMER TO SECURE THE POLE IN A VERTICAL POSITION. IF THE GROUND IS NOT ADEQUATE TO SUPPORT THE POLE, A GUY WILL HAVE TO BE INSTALLED BY THE CUSTOMER.

4. TEMPORARY METER POLES MUST BE 16' (FEET) IN LENGTH AND BE SET 4' (FEET) DEEP. A TEMPORARY METER POLE MUST BE A TREATED POLE WITH A MINIMUM SIZE OF 4" X 6" (INCHES). A TEMPORARY METER POLE WITH A SERVICE LENGTH OF 75' (FEET) OR GREATER MUST BE BRACED AS SHOWN ON THE TEMPORARY METER POLE DRAWING.

5. SERVICE ENTRANCE CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. SERVICE ENTRANCE CONDUIT SHALL BE SCHEDULE 40 PVC OR RIGID CONDUIT, NO EMT, AND SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY. A MINIMUM OF 3 CONDUIT STRAPS ARE REQUIRED, WITH ONE (1) STRAP BEING NO MORE THAN 12" (INCHES) FROM THE WEATHER HEAD.

6. SERVICE ENTRANCE CONDUCTORS FROM THE POINT OF CONNECTION TO METER BASE, TO THE MAIN DISCONNECT, FURNISHED AND INSTALLED BY CUSTOMER.

SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER ONLY AND SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRIC CODE OR GOVERNING AUTHORITY.

THE NEUTRAL OF THE SERVICE ENTRANCE CONDUCTORS CAN BE TWO (2) SIZES SMALLER THAN THE OTHER CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY AND WHITE TAPE AT THE WEATHER HEAD AND IN THE METER BASE. AN EXTENSION OF 18" (INCHES) OF SERVICE CONDUCTOR IS REQUIRED AT THE WEATHER HEAD.

7. MAIN DISCONNECT, EITHER A SINGLE MAIN OR A MAIN IN A DISTRIBUTION PANEL, FURNISHED AND INSTALLED BY CUSTOMER. MAIN DISCONNECT SHALL BE SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY.

MAIN DISCONNECTS AND ANY OTHER ELECTRICAL EQUIPMENT THAT IS EXPOSED TO THE ELEMENTS MUST BE OF A WEATHERPROOF AND WATER TIGHT DESIGN.

8. METER BASE AND K-10 SERVICE HOLDER TO BE FURNISHED AND INSTALLED BY CUSTOMER. THEY MUST CONFORM TO HELCO STANDARDS AND BE COMPATIBLE WITH HELCO METERING. THE METER BASE SHALL BE MOUNTED BETWEEN 5' AND 6' (FEET) ABOVE FINISHED GRADE. THE K10C SHALL BE MOUNTED 6" (INCHES) FROM THE TOP OF THE METER POLE IN THE DIRECTION OF HELCO'S SERVICE CABLE. PRE-DRILLING A PILOT HOLE FOR THE K10C IS RECOMMENDED.

9. A METER BASE GROUND SHALL EXTEND FROM THE NEUTRAL OR GROUNDING LUG IN THE METER BASE TO GROUND ROD. THE METER BASE GROUND SHALL BE A MINIMUM #6, SOFT DRAWN COPPER WIRE. THE METER BASE GROUND WIRE MUST BE CONNECTED IN THE GROUND WIRE LUG, WHERE PROVIDED, AND NOT IN THE SERVICE NEUTRAL LUG. THE METER BASE GROUND WIRE MUST BE STAPLED EVERY SIX (6) INCHES.

10. THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6, BARE, SOFT DRAWN COPPER WIRE AND EXTEND FROM 6" (INCHES) ABOVE THE TOP OF THE METER POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE FROM THE SERVICE ENTRANCE CONDUIT. THE POLE GROUNDING CONDUCTOR MUST BE STAPLED, STARTING FROM THE TOP OF THE POLE AT 2' (FOOT) INTERVALS UNTIL A POINT 6' (FEET) ABOVE THE GROUND IS REACHED, THEN STAPLED EVERY 6" (INCHES).

11. GROUND RODS SHALL BE 5/8" X 8" COPPER WELD OR 1/2" X 8' COPPER. PERMANENT METER POLE GROUND RODS SHALL BE SET 1" (INCH) BELOW FINISHED GRADE.

TEMPORARY METER POLE GROUND RODS CAN BE SET 4" (INCHES) ABOVE FINISHED GRADE.

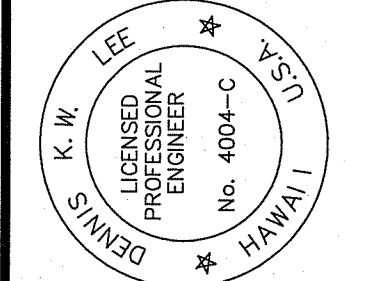
12. ALL UNUSED OR OPEN HOLES IN THE METER BASE, MAIN DISCONNECTOR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS.


13. INSPECTION: IF A GOVERNING AUTHORITY REQUIRES INSPECTION, INSPECTION TAG MUST BE IN PLACE AND MARKED APPROVED BEFORE HELCO WILL CONNECT SERVICE.

REVISIONS		DATE	DWG. CHK.	DATE	PRINTS TO
No.					

This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 07-28-16

Wesley R. Segawa K.W. d.w.  
Wesley R. Segawa & Associates, Inc.





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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 59-B-1 AND 59-B-2 MISCELLANEOUS NOTES

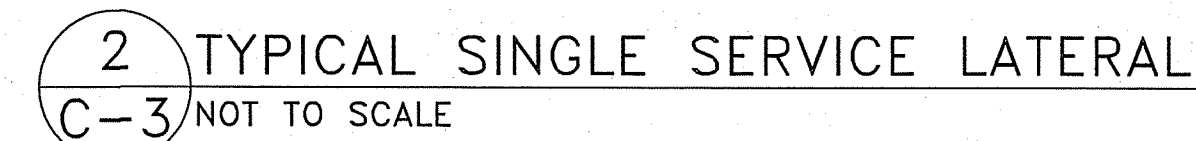
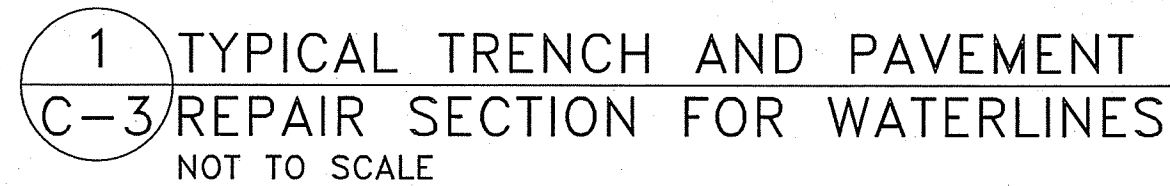
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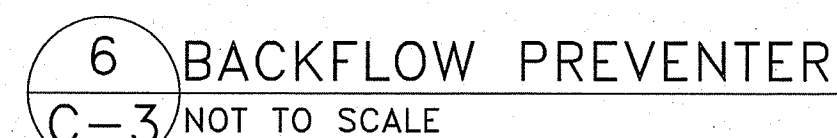
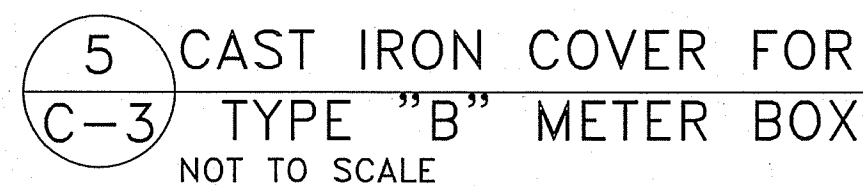
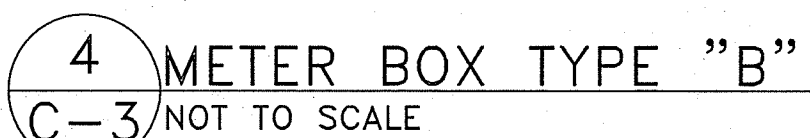
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OF **3** SHTS.



1. ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
2. ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
3. THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
4. ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
5. THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
6. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE – NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
8. ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
9. PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
10. METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
11. RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
12. SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
13. LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
14. WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
16. AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
17. BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



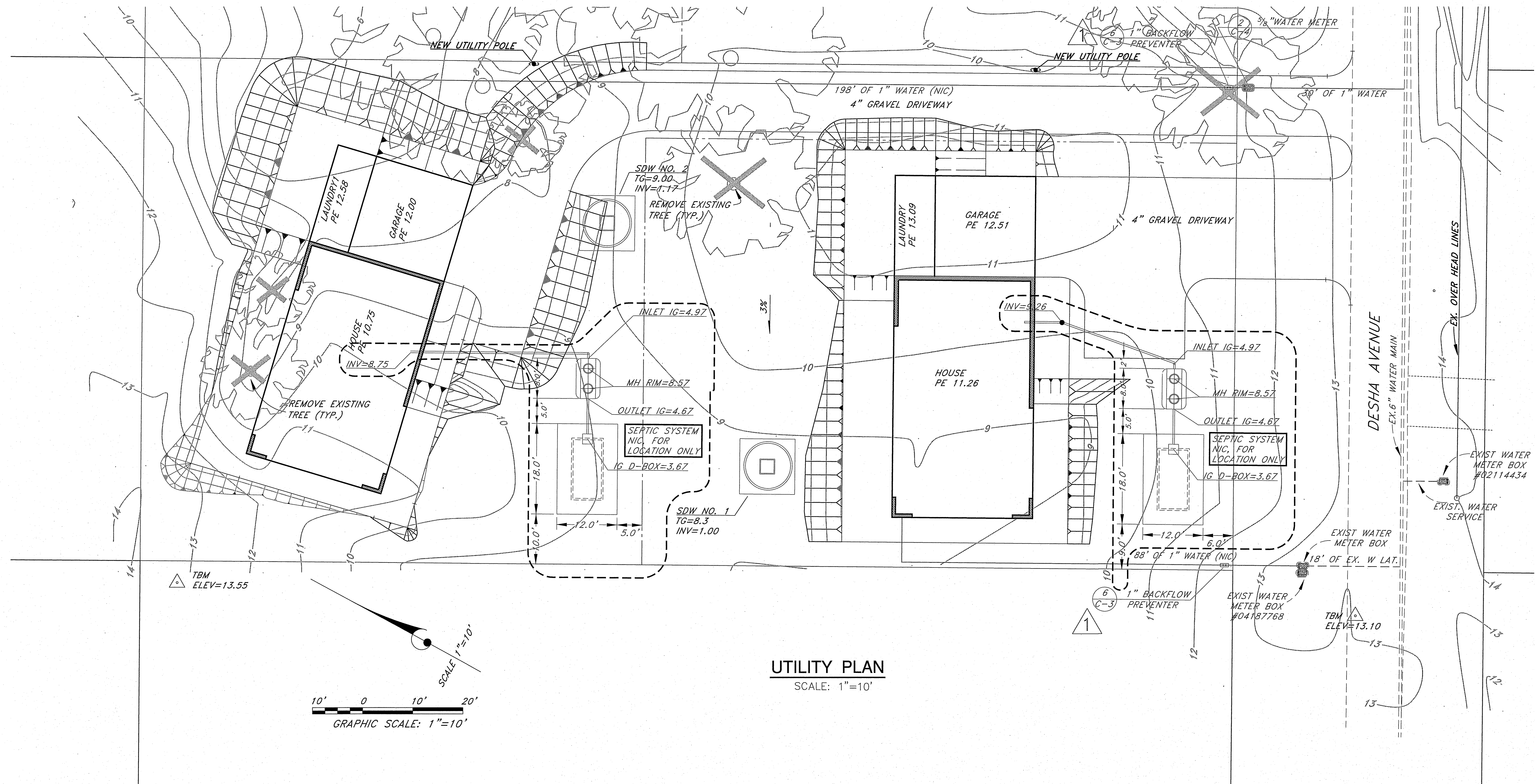
3 SCHEDULE OF COPPER FITTINGS  
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SHEET No. 5  
OF 9 SHTS.

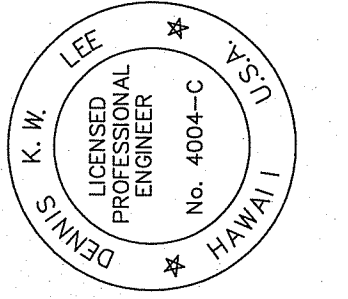




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1	4/5/2016	3, 4, 5, & 8	DL	INSTALL BACKFLOW PREVENTER
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Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Wesley R. Segawa, P.E., C.E., S.E., F.A.S.T.E.



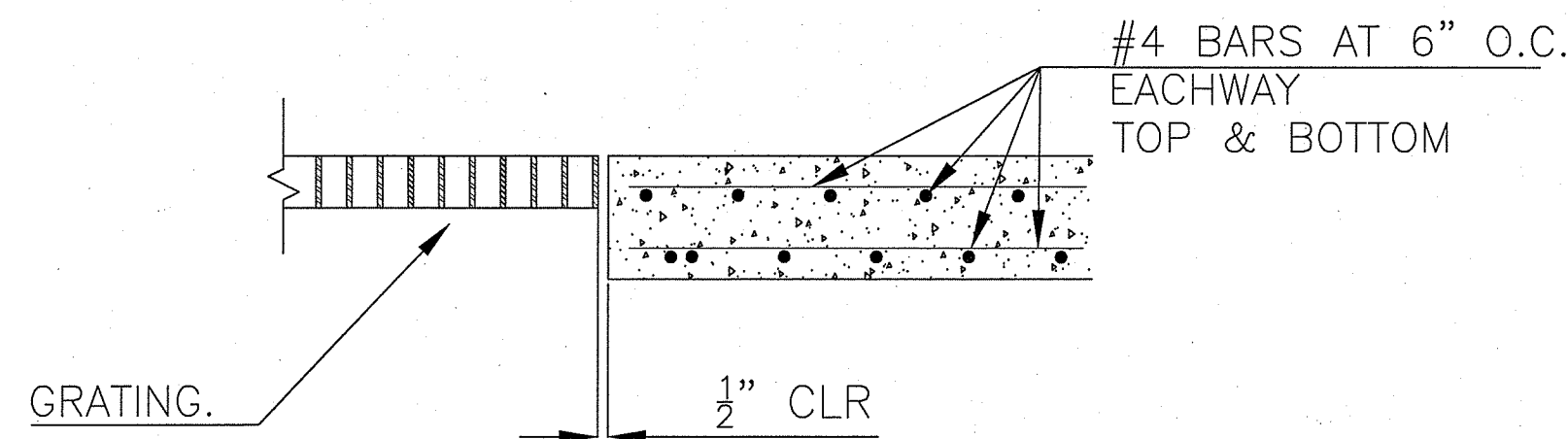
**WRS**  
Wesley R. Segawa and Associates, Inc.  
Civil & Structural Engineers  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

**Project Title:** IMPROVEMENTS FOR KEAUKAHA TRACT 1  
**Sheet Title:** LOTS 59-B-1 AND 59-B-2 UTILITY PLAN

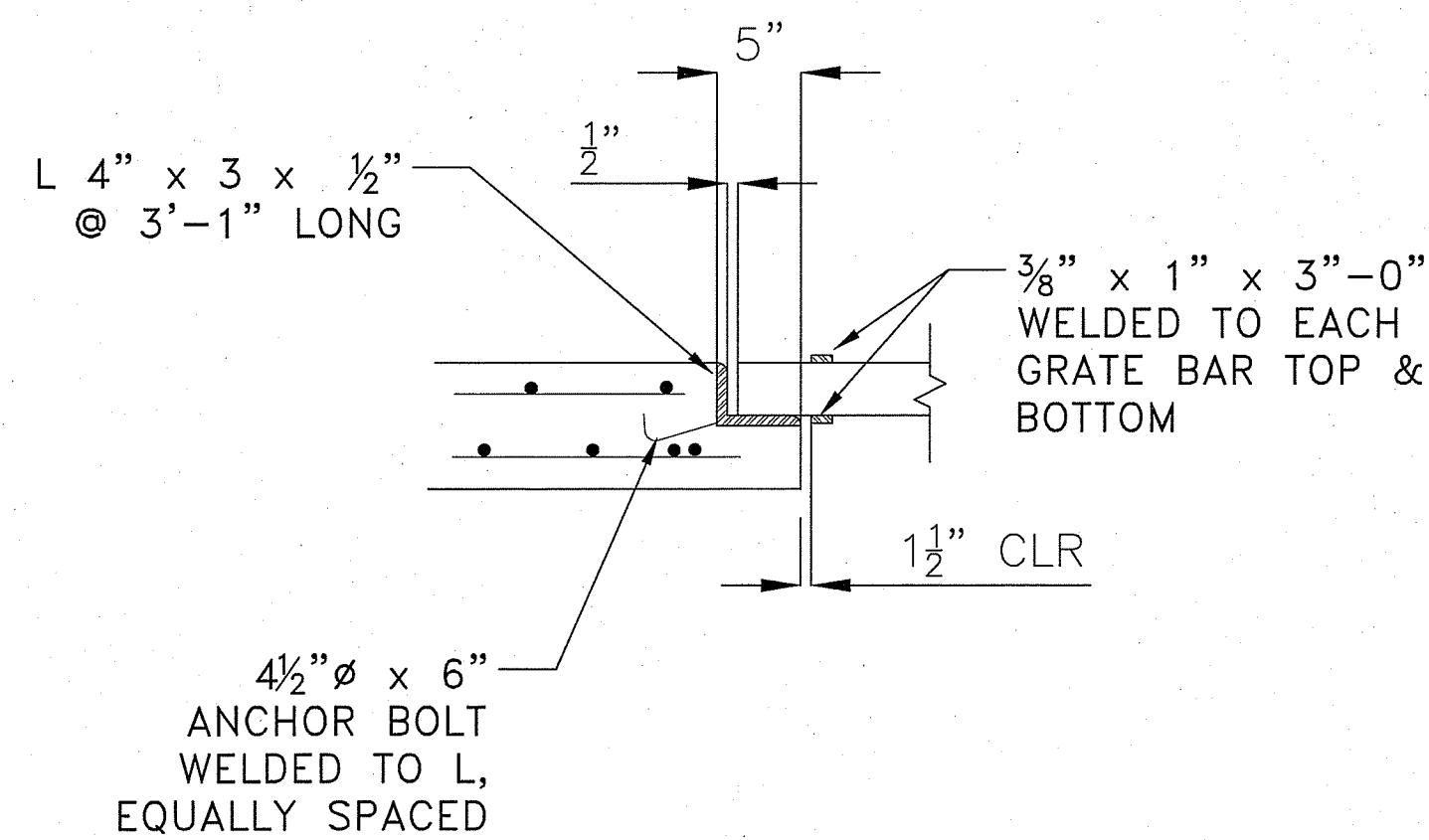
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SHEET No. **6**  
OF **9** SHTS.

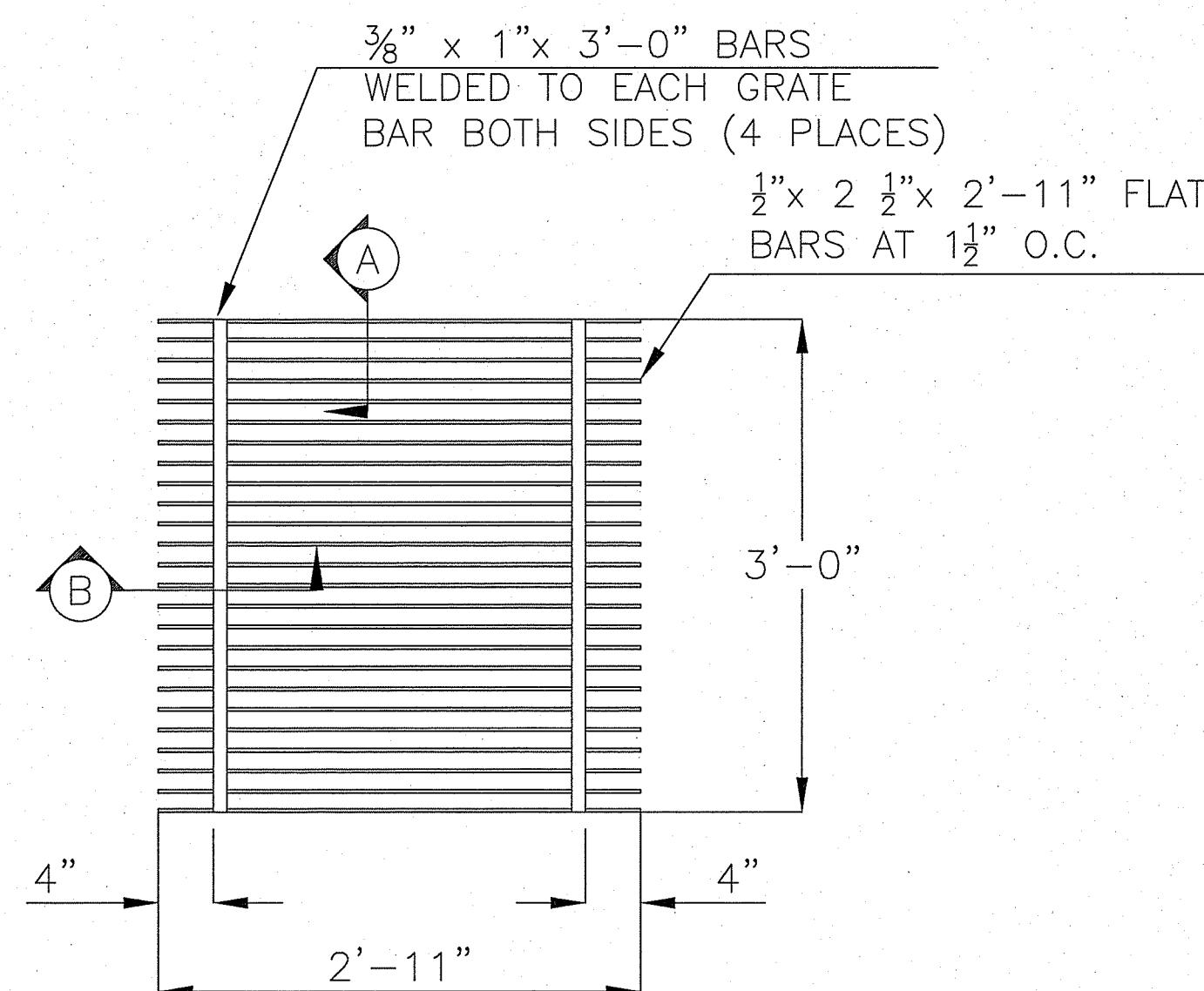




SECTION A-A  
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SECTION B-B  
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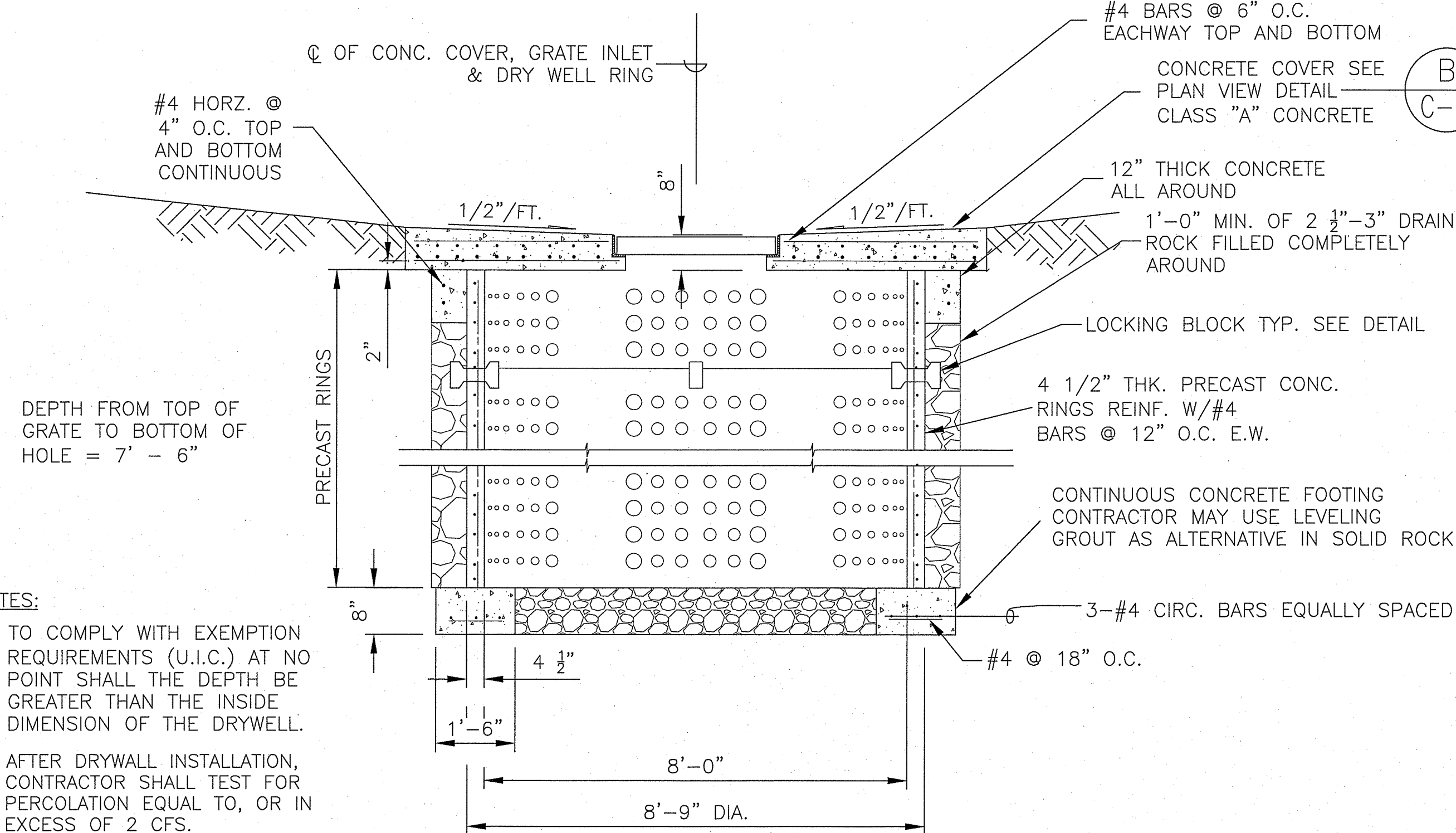


GRATING  
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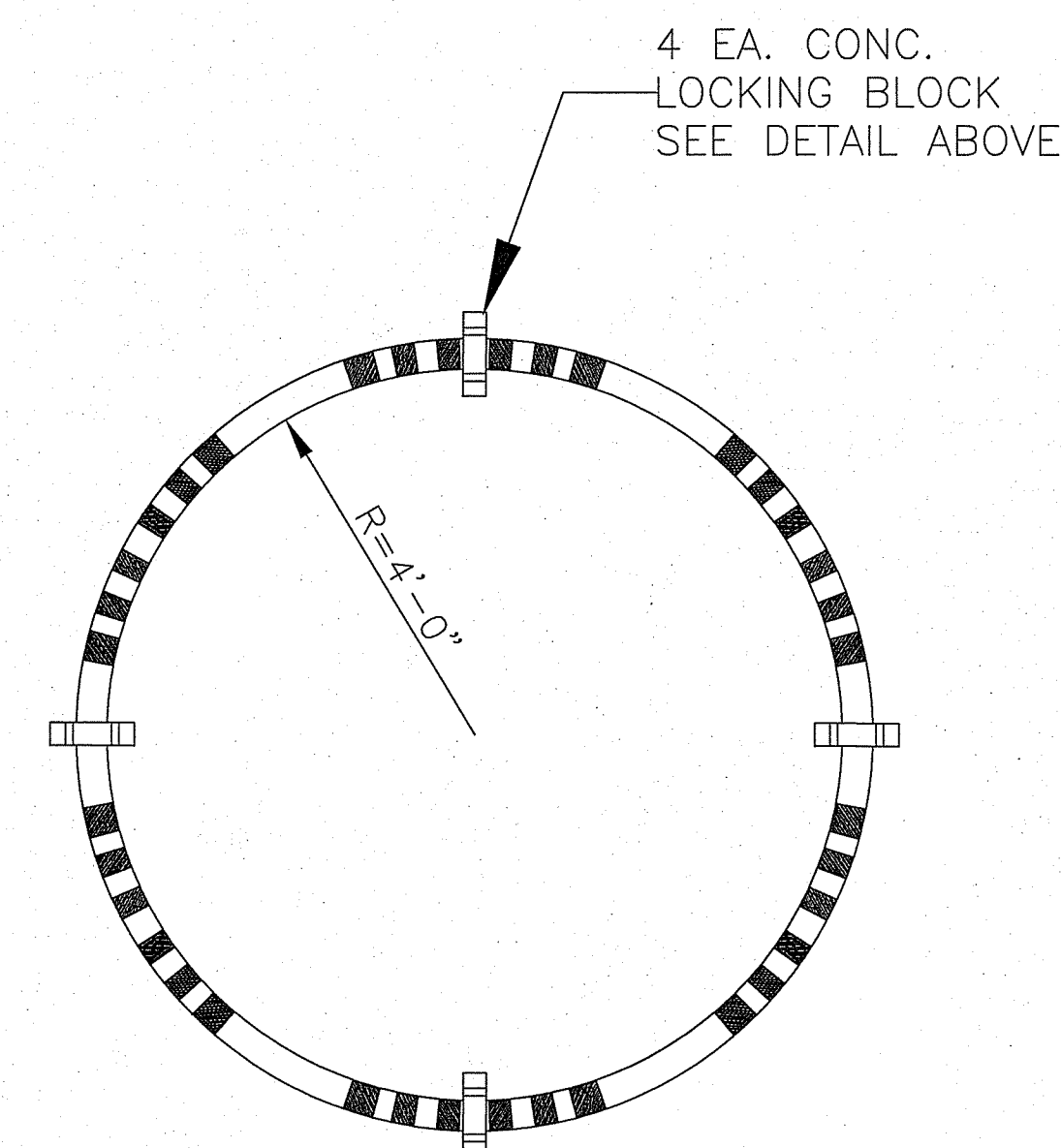
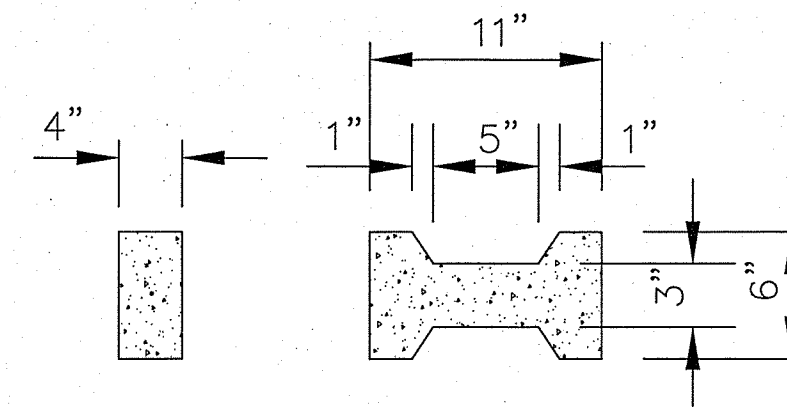
(A) DRYWELL GRATE DETAIL  
C-6 NOT TO SCALE

NOTES:

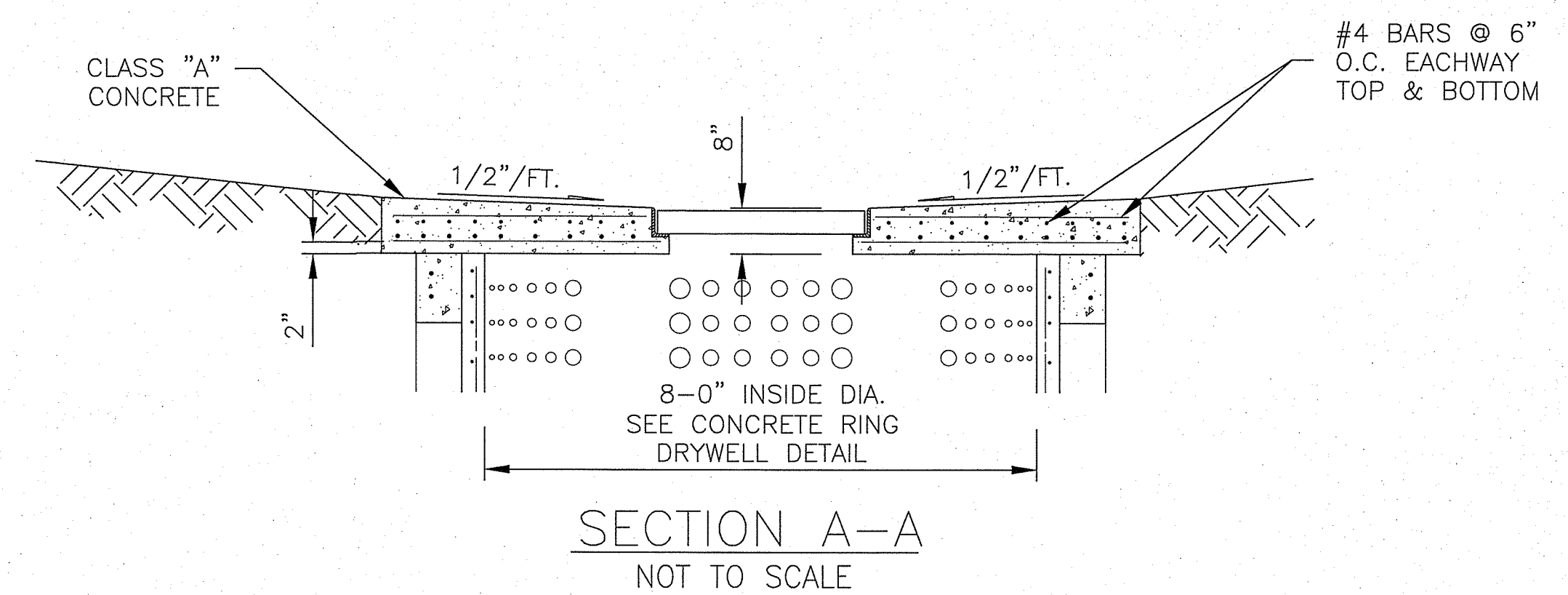
1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.



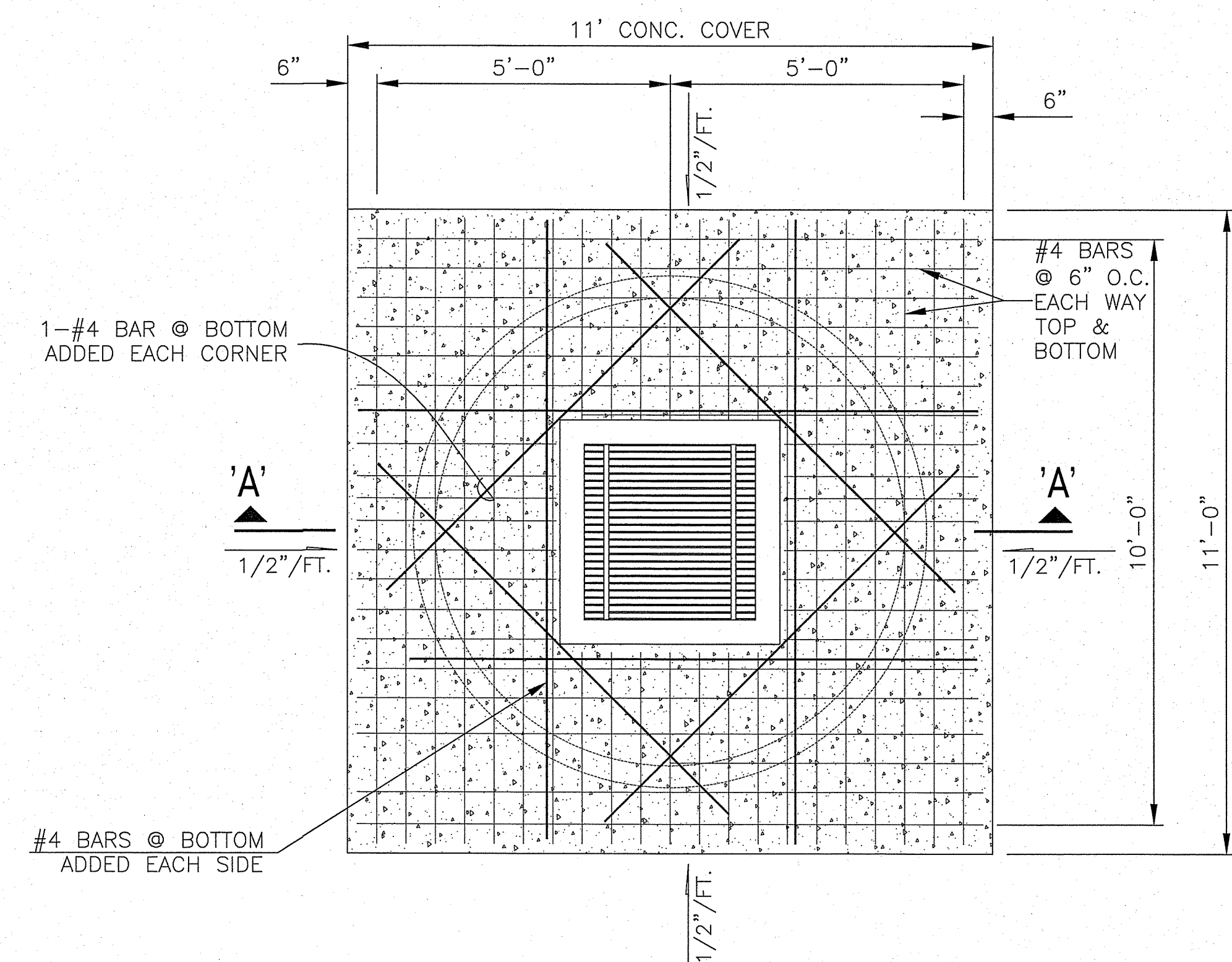
CONCRETE RING DRYWELL  
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TYPICAL RING CROSS SECTION  
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SECTION A-A  
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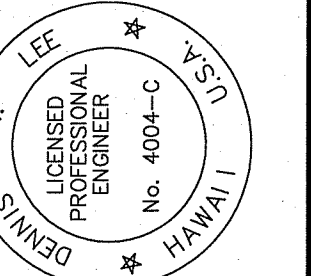
PLAN  
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(B) CONCRETE DRYWELL DETAIL  
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This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My License No. is 4004-C. My Commission Expires 04-30-16.

Wesley R. Segawa & Associates, Inc.



**WRSA**  
Wesley R. Segawa and Associates, Inc.  
committed to quality performance & value

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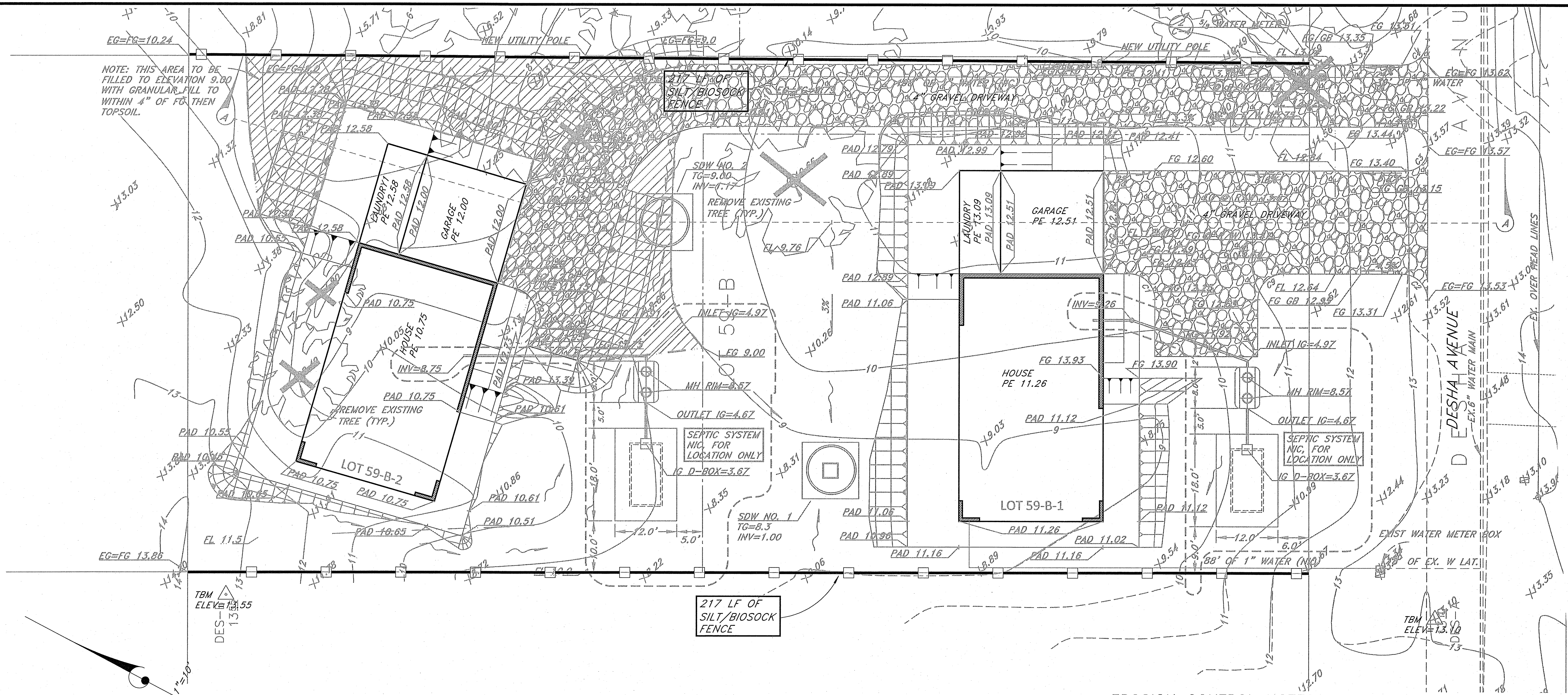
Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS  
SHEET TITLE: LOTS 59-B-1 AND 59-B-2 SHALLOW DRYWELL DETAILS

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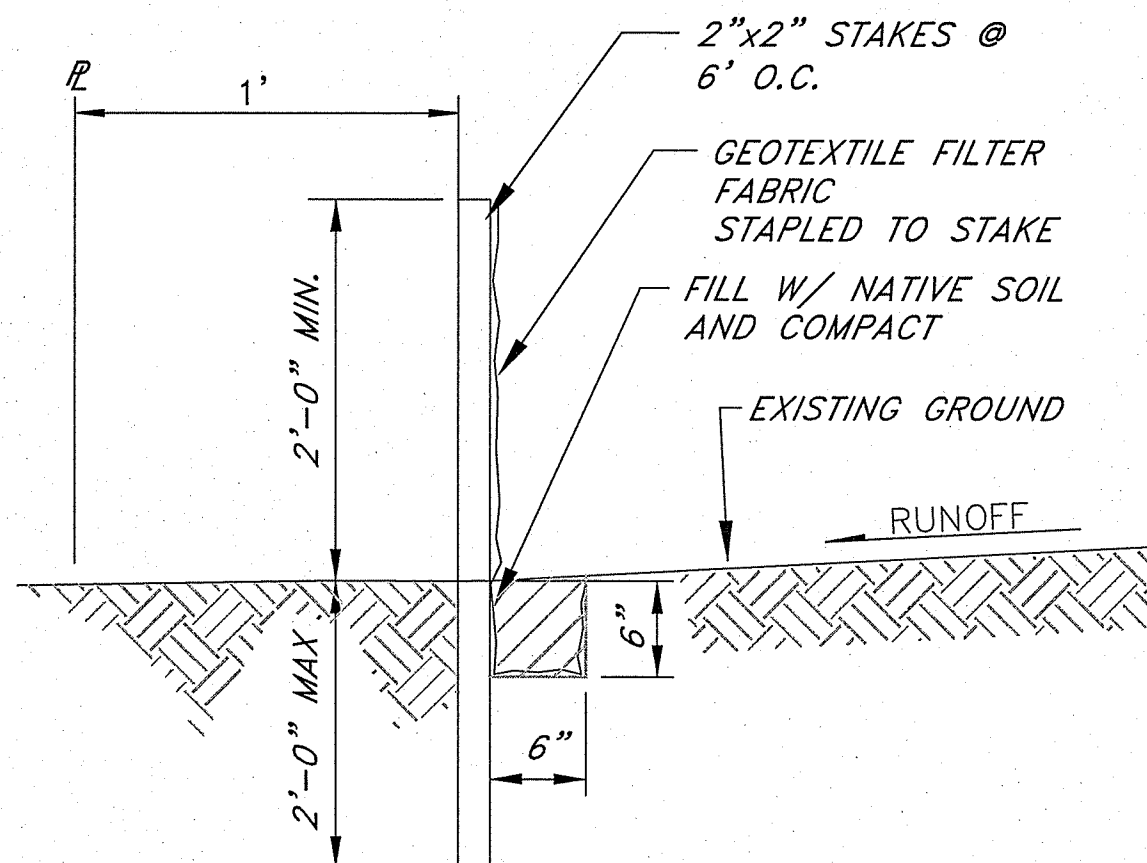
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OF 9 SHTS.





# LEGEND:

SILT FENCE/BIOSOCK



## SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.

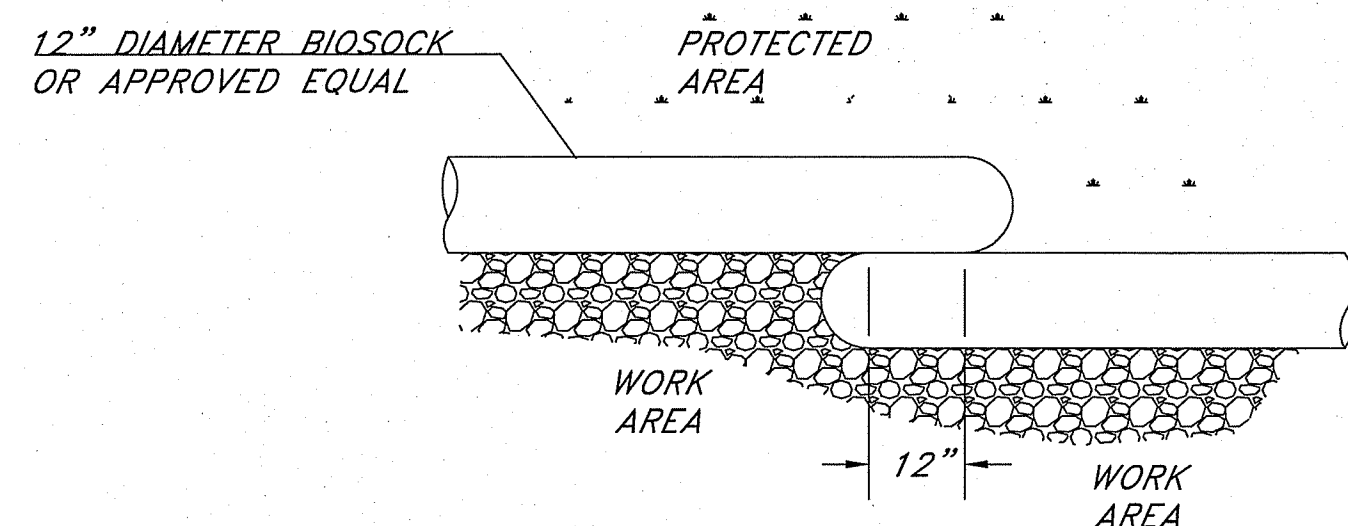
AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

## SILT FENCE DETAIL

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## EROSION CONTROL NOTES:

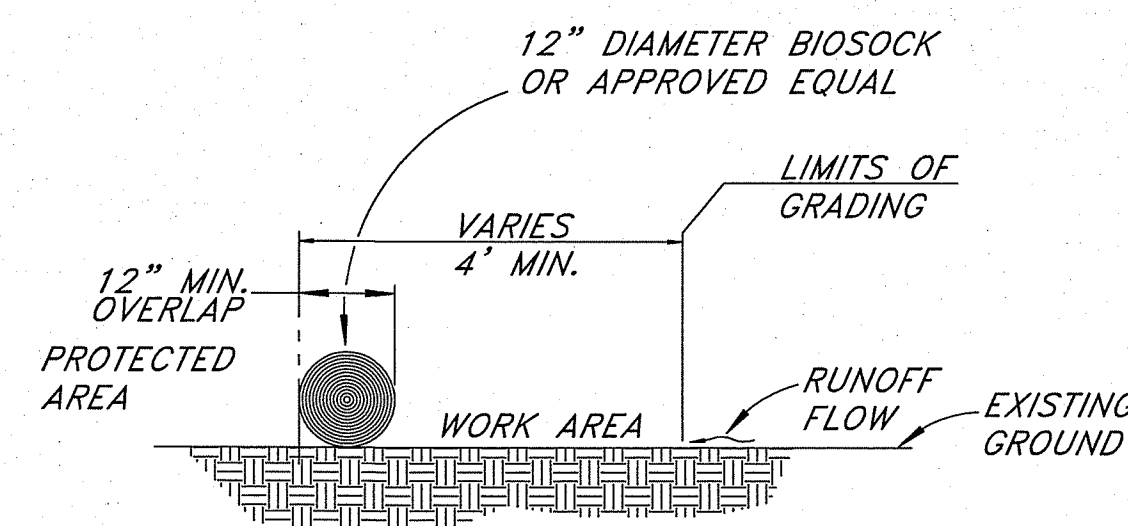
1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.



## PLAN VIEW

## BIOSOCK DETAIL (12" DIA)

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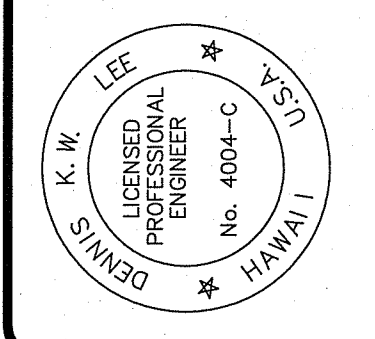
This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My License No. 4004-C.

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Wesley R. Segawa

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**WRSA**

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Commitment to Quality Performance & Value

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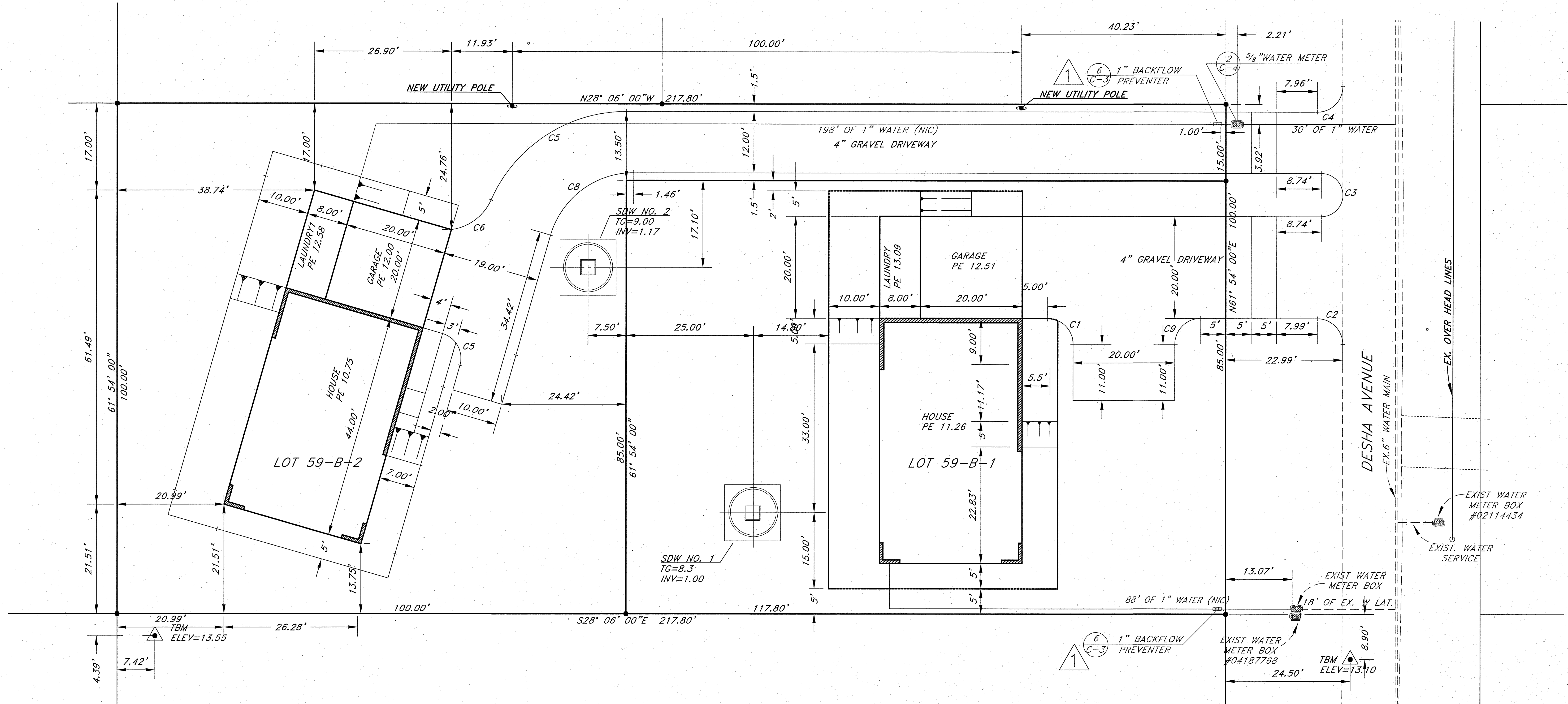
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 59-B-1 AND 59-B-2 EROSION CONTROL (BMP) PLAN

DESIGN BY: DRB	DRAWING No. C-7
DRAWN BY: DRB	SHEET No. 8
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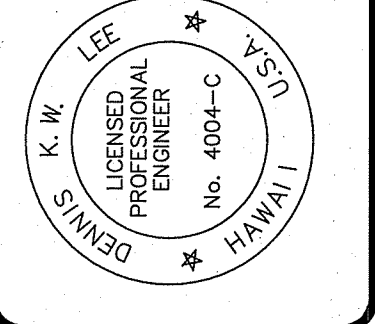




GRAPHIC SCALE: 1"=10'

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1	4/5/2016	3, 4, 5, & 8	10	INSTALL BACKFLOW PREVENTER
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 Date: 4/5/2016  
 Wesley R. Segawa & Associates, Inc.



**WRSA**  
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Project Title: IMPROVEMENTS FOR KEAUKAHA TRACT 1  
 SHEET TITLE: LOTS 59-B-1 AND 59-B-2 DIMENSION PLAN

Sheet Title: LOTS 59-B-1 AND 59-B-2 DIMENSION PLAN

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SHEET No. 9 OF 9 SHTS.

# KEAUKAHA TRACT 1 IMPROVEMENTS

## LOT 63-A AND 63-B

**LOCATION MAP**  
NOT TO SCALE

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>DRAWING NO.</u>
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES & SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	WASTEWATER COLLECTION NOTES	C-4
6	GRADING AND DRAINAGE PLAN	C-5
7	UTILITY PLAN	C-6
8	SHALLOW DRYWELL DETAILS	C-7
9	SANITARY SEWER DETAILS	C-8
10	SANITARY SEWER GRINDER PUMP NOTES & DETAILS	C-9
11	EROSION CONTROL (BMP) PLAN	C-10
12	DIMENSION PLAN	C-11

*Myaef R*  
\_\_\_\_\_  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

*Volkanoff*  
\_\_\_\_\_  
MANAGER, CHIEF—ENGINEER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII *ay.*

DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

DIRECTOR, PLANNING DEPARTMENT  
COUNTY OF HAWAII

FOR GRADING PURPOSES ONLY;

DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII

1/20/16  
DATE:

3/30/16  
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Exp. 04-30-16

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*Wesley R. Segawa*

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**KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 63-A & 63-B  
TITLE SHEET**

Project Title:

DESIGN BY: DRB
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CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
TITLE No. W1406.80

DRAWING No.  
T-1

SHEET No. 1 OF 12 SHTS.



GRADING NOTES:

1.

ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2.

THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
3.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
4.

ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5.

THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6.

FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7.

THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8.

NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
9.

FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10.

THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION:

0

CU. YDS.

TOTAL EMBANKMENT:

850

CU. YDS.

11.

THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

1.

UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
2.

ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
3.

CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
4.

ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
5.

ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
6.

RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
7.

CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

1.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
2.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
3.

THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
4.

FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
5.

THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
6.

THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
7.

ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
8.

A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
9.

NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
10.

NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
11.

EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
12.

ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
13.

NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
14.

SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

- A.

ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
- B.

IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
- C.

ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

1.

THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
2.

IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- A.

REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- B.

RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.
3.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.
4.

THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.
5.

STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

6.

DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

7.

SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

8.

INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

9.

PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COCN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TC	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

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UTILITY POLE SPECIFICATIONS AND NOTES:

MAXIMUM-200AMP SERVICE

IT SHALL BE THE CUSTOMER'S RESPONSIBILITY FOR COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY GOVERNING AUTHORITY FOR ALL EQUIPMENT BEYOND THE POINT OF CONNECTION. THE CUSTOMER IS ADVISED TO USE THE SERVICES OF A QUALIFIED ELECTRICIAN TO ASSURE COMPLIANCE WITH ALL CODES AND REGULATIONS.

1. DESCRIPTION:

PERMANENT - MOBILE HOMES, CAMPS, WATER WELLS, AND ANY OTHER CONNECTION NOT CONSIDERED TEMPORARY.

TEMPORARY - CONSTRUCTION, SPECIAL EVENTS, ETC.

2. METER POLES ARE FURNISHED AND INSTALLED BY CUSTOMER. SPECIFICATIONS SHOWN ON THE DRAWING AND DESCRIBED HERE SHALL BE CONSIDERED MINIMUM REQUIREMENTS.

3. PERMANENT METER POLES MUST BE 20' (FEET) IN LENGTH AND BE SET 5' (FEET) DEEP. A PERMANENT METER POLE MUST BE A TREATED ROUND POLE WITH A MINIMUM TOP DIAMETER OF 5" (INCHES) OR A TREATED 6" X 6" (INCH) POLE.

IT WILL BE THE RESPONSIBILITY OF THE CUSTOMER TO SECURE THE POLE IN A VERTICAL POSITION. IF THE GROUND IS NOT ADEQUATE TO SUPPORT THE POLE, A GUY WILL HAVE TO BE INSTALLED BY THE CUSTOMER.

4. TEMPORARY METER POLES MUST BE 16' (FEET) IN LENGTH AND BE SET 4' (FEET) DEEP. A TEMPORARY METER POLE MUST BE A TREATED POLE WITH A MINIMUM SIZE OF 4" X 6" (INCHES). A TEMPORARY METER POLE WITH A SERVICE LENGTH OF 75' (FEET) OR GREATER MUST BE BRACED AS SHOWN ON THE TEMPORARY METER POLE DRAWING.

5. SERVICE ENTRANCE CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. SERVICE ENTRANCE CONDUIT SHALL BE SCHEDULE 40 PVC OR RIGID CONDUIT, NO EMT, AND SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY. A MINIMUM OF 3 CONDUIT STRAPS ARE REQUIRED, WITH ONE (1) STRAP BEING NO MORE THAN 12" (INCHES) FROM THE WEATHER HEAD.

6. SERVICE ENTRANCE CONDUCTORS FROM THE POINT OF CONNECTION TO METER BASE, TO THE MAIN DISCONNECT, FURNISHED AND INSTALLED BY CUSTOMER.

SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER ONLY AND SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRIC CODE OR GOVERNING AUTHORITY.

THE NEUTRAL OF THE SERVICE ENTRANCE CONDUCTORS CAN BE TWO (2) SIZES SMALLER THAN THE OTHER CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY AND WHITE TAPE AT THE WEATHER HEAD AND IN THE METER BASE. AN EXTENSION OF 18" (INCHES) OF SERVICE CONDUCTOR IS REQUIRED AT THE WEATHER HEAD.

7. MAIN DISCONNECT, EITHER A SINGLE MAIN OR A MAIN IN A DISTRIBUTION PANEL, FURNISHED AND INSTALLED BY CUSTOMER. MAIN DISCONNECT SHALL BE SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY.

MAIN DISCONNECTS AND ANY OTHER ELECTRICAL EQUIPMENT THAT IS EXPOSED TO THE ELEMENTS MUST BE OF A WEATHERPROOF AND WATER TIGHT DESIGN.

8. METER BASE AND K-10 SERVICE HOLDER TO BE FURNISHED AND INSTALLED BY CUSTOMER. THEY MUST CONFORM TO HELCO STANDARDS AND BE COMPATIBLE WITH HELCO METERING. THE METER BASE SHALL BE MOUNTED BETWEEN 5' AND 6' (FEET) ABOVE FINISHED GRADE. THE K10C SHALL BE MOUNTED 6" (INCHES) FROM THE TOP OF THE METER POLE IN THE DIRECTION OF HELCO'S SERVICE CABLE. PRE-DRILLING A PILOT HOLE FOR THE K10C IS RECOMMENDED.

9. A METER BASE GROUND SHALL EXTEND FROM THE NEUTRAL OR GROUNDING LUG IN THE METER BASE TO GROUND ROD. THE METER BASE GROUND SHALL BE A MINIMUM #6, SOFT DRAWN COPPER WIRE. THE METER BASE GROUND WIRE MUST BE CONNECTED IN THE GROUND WIRE LUG, WHERE PROVIDED, AND NOT IN THE SERVICE NEUTRAL LUG. THE METER BASE GROUND WIRE MUST BE STAPLED EVERY SIX (6) INCHES.

10. THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6, BARE, SOFT DRAWN COPPER WIRE AND EXTEND FROM 6" (INCHES) ABOVE THE TOP OF THE METER POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE FROM THE SERVICE ENTRANCE CONDUIT. THE POLE GROUNDING CONDUCTOR MUST BE STAPLED, STARTING FROM THE TOP OF THE POLE AT 2' (FOOT) INTERVALS UNTIL A POINT 6' (FEET) ABOVE THE GROUND IS REACHED, THEN STAPLED EVERY 6" (INCHES).

11. GROUND RODS SHALL BE 5/8" X 8" COPPER WELD OR 1/2" X 8" COPPER. PERMANENT METER POLE GROUND RODS SHALL BE SET 1" (INCH) BELOW FINISHED GRADE.

TEMPORARY METER POLE GROUND RODS CAN BE SET 4" (INCHES) ABOVE FINISHED GRADE.

12. ALL UNUSED OR OPEN HOLES IN THE METER BASE, MAIN DISCONNECTOR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS.

13. INSPECTION: IF A GOVERNING AUTHORITY REQUIRES INSPECTION, INSPECTION TAG MUST BE IN PLACE AND MARKED APPROVED BEFORE HELCO WILL CONNECT SERVICE.

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This work was prepared by me or under my direct supervision and construction was performed in accordance with the provisions of the Professional Engineer Act, Exp. 04-30-16

**Wesley R. Sagawa & Associates, Inc.**

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Project Title:

KEAUKAHA TRACT 1  
IMPROVEMENTS

Sheet Title:

LOTS 63-A & 63-B  
MISCELLANEOUS NOTES

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DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
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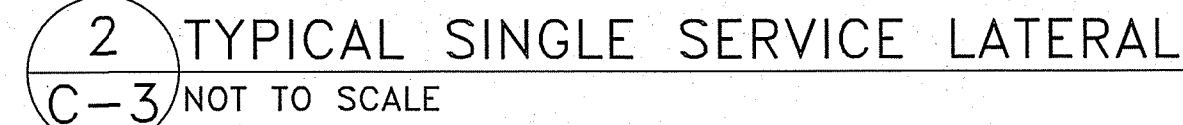
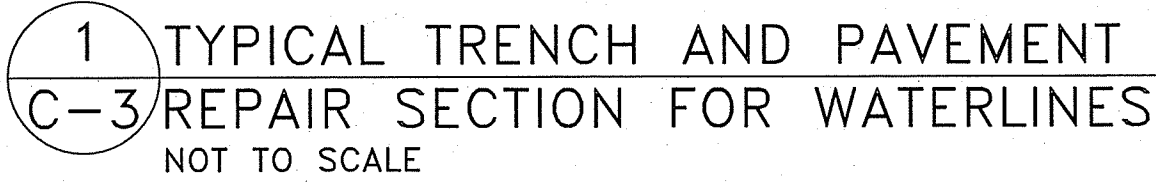
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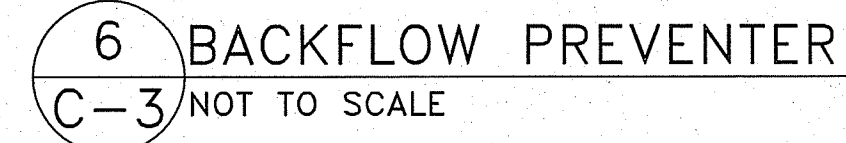
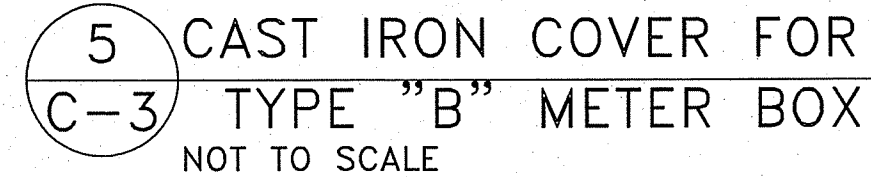
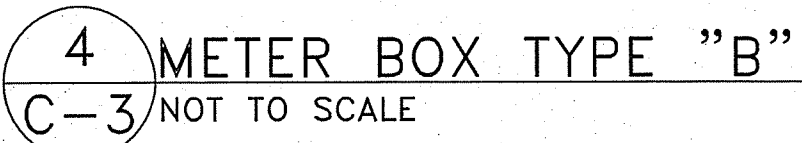
OF 12 SHTS.



1. ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
2. ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
3. THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
4. ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
5. THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
6. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THAT THE UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED, IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE – NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
8. ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
9. PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
10. METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
11. RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
12. SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
13. LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
14. WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
16. AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
17. BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



3 SCHEDULE OF COPPER FITTINGS  
C-3 NOT TO SCALE





WASTEWATER COLLECTION SYSTEM NOTES:

- THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII (JULY 1972); THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SEPTEMBER 1986); THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, SEPTEMBER 1984 AND THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DULY AND LAWFUL PROSECUTION OF THE WORK.
- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY WRITTEN OTHERWISE.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS. ANY ADDITIONS, DELETIONS OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION.
- INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWO'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL DETECTABLE NEW CONSTRUCTION. CALL THE WASTEWATER DIVISION AT 961-8338 AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.
  - WHEN AND AS OFTEN AS THE WWD DETERMINES THROUGH THEIR INSPECTION PROCEDURES, MATERIAL, EQUIPMENT OR WORKMANSHIP DO NOT MEET THE REQUIREMENTS, THE WWD WILL GIVE WRITTEN NOTICE OF THE NONCOMPLIANCE TO THE CONTRACTOR AND IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.
  - INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING OF THE PIPE AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
- SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWAII HOLIDAYS. IF SUCH WORK DICTATES PERFORMANCE ON THESE NON-WORKING DAYS AND AFTER NORMAL HOURS (3:30 PM TO 7:00 AM) OF OPERATION THEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
- ALL EXISTING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, IF DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED BY THE CONTRACTOR AND THE CONTRACTOR SHALL PAY ALL EXPENSES.
- BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
- THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
- AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY, AND UPON COMPLETION OF THE WORK, REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND.

SEWER SYSTEM REQUIREMENTS

1. SEWER MAIN PIPE AND FITTINGS:

- ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT OR AN APPROVED EQUAL.
- LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM. PIPE SHALL BE FITTED TOGETHER AND MATCHED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.
- THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE BEFORE LEAVING THE WORKPLACE FOR THE NIGHT.
- BECAUSE OF THE NATURE OF PLASTIC PIPE AND FILLINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.

2. TRENCH, PIPE BEDDING, AND BACKFILL:

- TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLAN.
- PIPE BEDDING SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PLACED WITHIN TRENCH NOT LESS THAN 6 INCHES BUT NOT MORE THAN 8 INCHES IN COMPACTED THICKNESS, SHOULD PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE, AND SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY UNLESS OTHERWISE NOTED ON PLANS.
- PIPE CUSHION SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PROPERLY PLACED A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT WHILE AVOIDING VERTICAL AND LATERAL DISPLACEMENT.
- CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY THE WWD ENGINEER.
- COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET OR A FRACTION THEREOF. THE ENGINEER RESERVES THE RIGHT TO INCREASE THE FREQUENCY OF COMPACTION TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.

3. SEWER LATERAL PIPE AND FITTINGS:

- NEW SEWER LATERALS AND CLEANOUT SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.
- SEWER CLEANOUTS SHALL BE LOCATED IN THE COUNTY RIGHT-OF-WAY WITHIN ONE FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS).
- THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18"X18"X18" CLASS B CONCRETE COLLAR REINFORCED WITH 1#3 REINFORCEMENT STEEL LOOP. REFER WWD STANDARD DETAIL WW-2. IN THE EVENT THAT THE CLEANOUT IS INSTALLED WITHIN A SIDEWALK OR SIMILAR AREA HAVING CONCRETE SURFACES, THE CONCRETE COLLAR IS NOT REQUIRED.
- IF A CLEANOUT IS SUBJECT TO VEHICULAR OR ABNORMAL LOADING IT SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246W, MANUFACTURED BY SOUTH BAY FOUNDRY OR APPROVED EQUAL) AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. REFER WWD STANDARD DETAIL WW-4.
- SEWER LATERAL CONNECTIONS TO AN EXISTING SEWER MAIN MAY BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORE ENTRY AREA ON THE MAIN SEWER PIPE. THE SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS 8 REINFORCED CONCRETE. THE REINFORCED JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" BEYOND THE SEWER SADDLE.

4. SEWER LINE ACCEPTANCE TEST:

- ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.
- LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 213 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.
- AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE WWD, A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.
  - THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR CLEANING OF THE LINES TO REMOVE ALL DEBRIS PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE INSPECTION AND ANY SUBSEQUENT INSPECTIONS WILL BE SUBJECT TO CHARGES TO THE CONTRACTOR.
  - THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.
  - IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND, ETC. THEN, MANDREL TESTING IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR.
  - CCTV INSPECTIONS WILL BE RECORDED IN VHS OR CDROM FORMAT. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.

5. FINAL PROJECT SUBMITTALS:

- UPON FINAL PROJECT ACCEPTANCE SUBMIT TO WWD ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM AND TWO (2) COPIED SETS AND ONE (1) SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2009 VERSION AND (1) SET OF ELECTRONIC DRAWINGS IN ADOBE PDF FORMAT.
- IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

CLEARING AND GRUBBING NOTES

- CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
- CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
- GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
- DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
- CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
- LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
- REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

DIVISION CHIEF, WASTEWATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

DATE

REVISIONS		DATE	DWG. CHK.	No.	DATE	PRINTS TO

This work was prepared by me or under my supervision and construction of this project was under my observation.  
Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Wesley R. Segawa, P.E.  
Professional Engineer  
No. 4004-C  
HAWAII

**WRSA**  
Wesley R. Segawa and Associates, Inc.  
Civil & Structural Engineers  
Committed to Quality Performance & Value

101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**

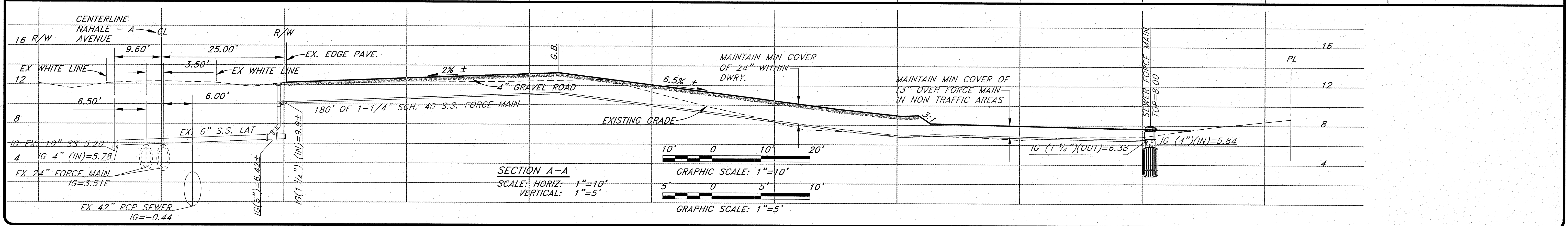
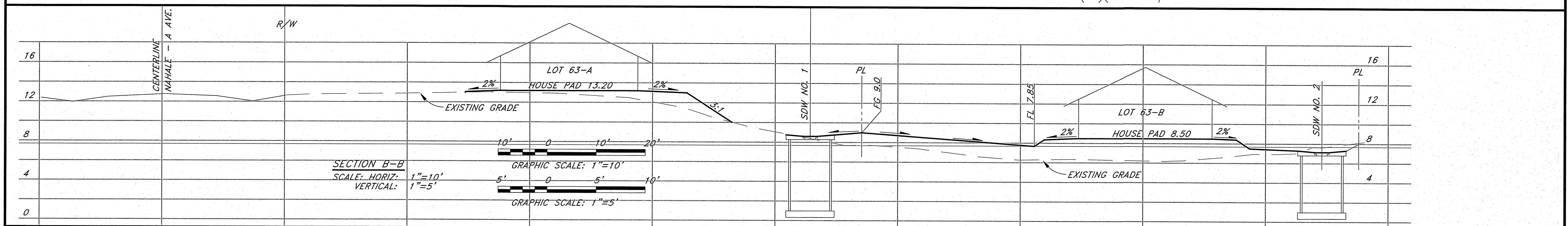
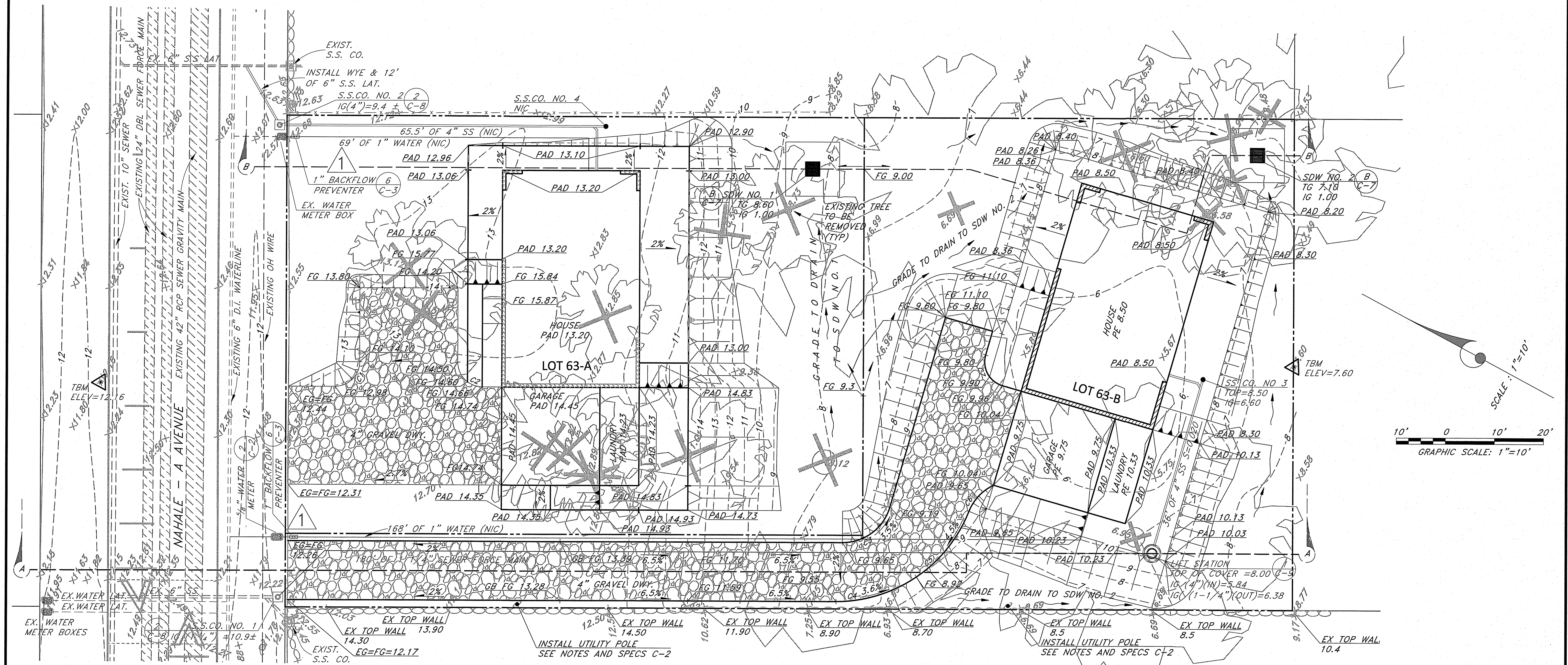
Sheet Title: **LOTS 63-A & 63-B W.W.C. SYSTEM NOTES**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.  
**C-4**

SHEET No.  
**5**  
OF **12** SHTS.





NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, & 11	DL	INSTALL BACKFLOW PREVENTER
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This work was prepared by me or under my direct supervision and I am a duly licensed professional engineer in the State of Hawaii. My license number is 4004-C.

**Wesley R. Segawa & Associates, Inc.**  
**Wesley R. Segawa**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 4004-C  
 HAWAII

**WRSA**  
 Wesley R. Segawa & Associates, Inc.  
 101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
 Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS LOT 63-A & 63-B**

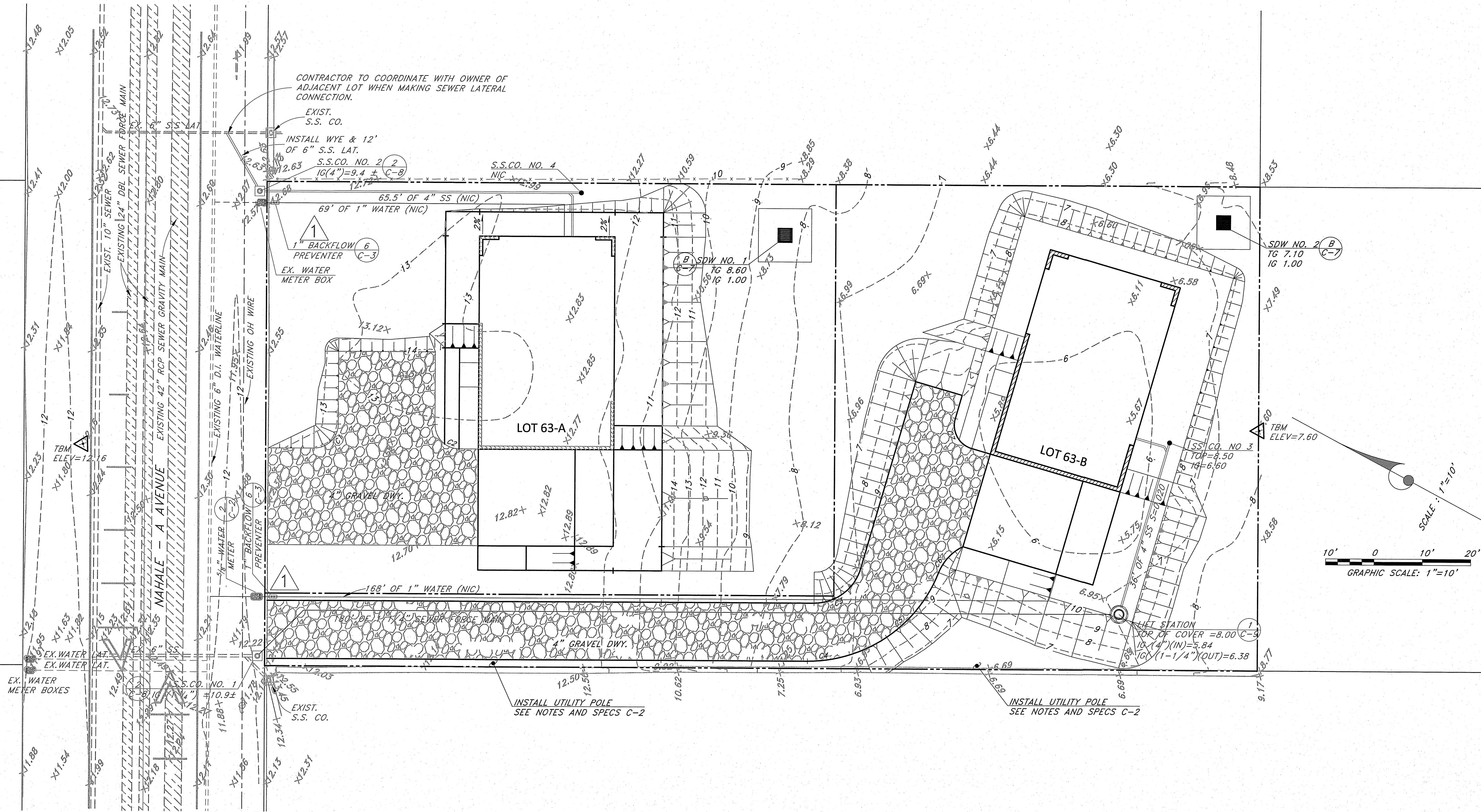
Sheet Title: **GRADING AND DRAINAGE PLAN**

DESIGN BY: DRB  
 DRAWN BY: DRB  
 CHECKED BY: DL  
 APPROVED BY: DL  
 DATE: NOV. 2015  
 SCALE: AS NOTED  
 FILE No. W1406.80

DRAWING No. **C-5**

SHEET No. **6**  
 OF 12 SHTS.





Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S73° 06' 00"E	7.07
C2	7.85	5.00	90.00	S16° 54' 00"W	7.07
C3	12.90	10.00	73.90	S65° 03' 00"E	12.02
C4	17.38	29.00	34.34	S45° 16' 21"E	17.12
C5	17.38	29.00	34.34	S79° 37' 03"E	17.12
C6	7.51	10.00	43.05	N75° 16' 01"W	7.34
C7	7.85	5.00	90.00	S33° 00' 00"W	7.07

No.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, & 11	DL	INSTALL BACKFLOW PREVENTER
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This work was prepared by me or under my supervision and construction of this project was under my observation.  
Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Wesley R. Segawa, P.E.  
No. 4004-C  
HAWAII

**WPSA**  
Wesley R. Segawa and Associates, Inc.  
Committed to Quality Performance & Value

Civil & Structural Engineers  
101 Silva Street, Suite 201, Honolulu, HI 96720-4755  
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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**

Sheet Title: **LOT 63-A & 63-B UTILITY PLAN**

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: NOV. 2015  
SCALE: AS NOTED  
FILE No. W1406.80

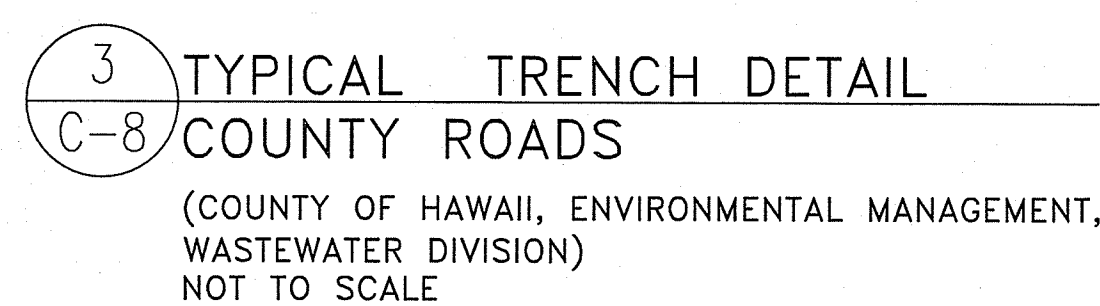
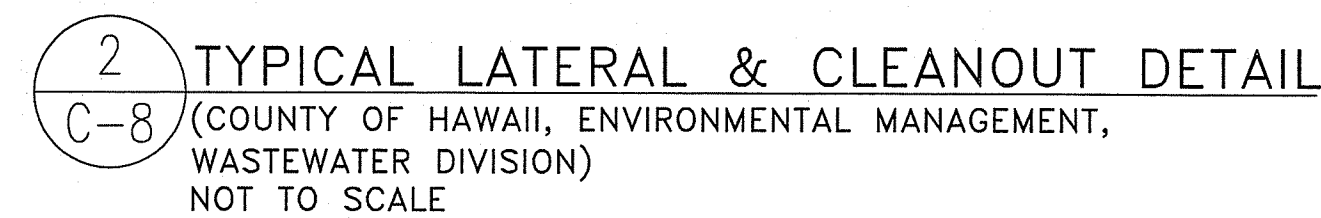
DRAWING No. **C-6**

SHEET No. **7**  
OF **12** SHTS.



SHEET No.  
8  
OF 12 SHTS.

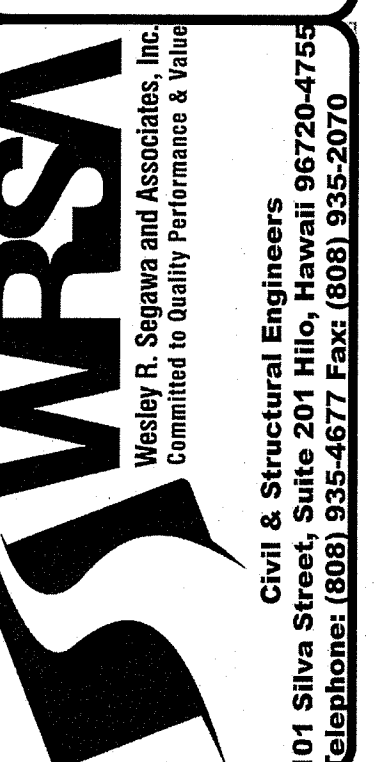
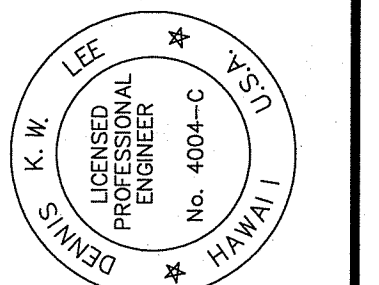




DATE \_\_\_\_\_

This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-16

William K. Al-Jee  
Wesley R. Segawa & Associates, Inc.



Project Title: **KEAUKAHA TRACT 1  
IMPROVEMENTS**

Sheet Title: **LOTS 63-A & 63-B  
SANITARY SEWER DETAILS**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: NOV. 2015
SCALE: AS NOTED
FILE No. W1406.80

DRAWING No.

C-8

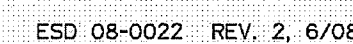
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12 SHTS.



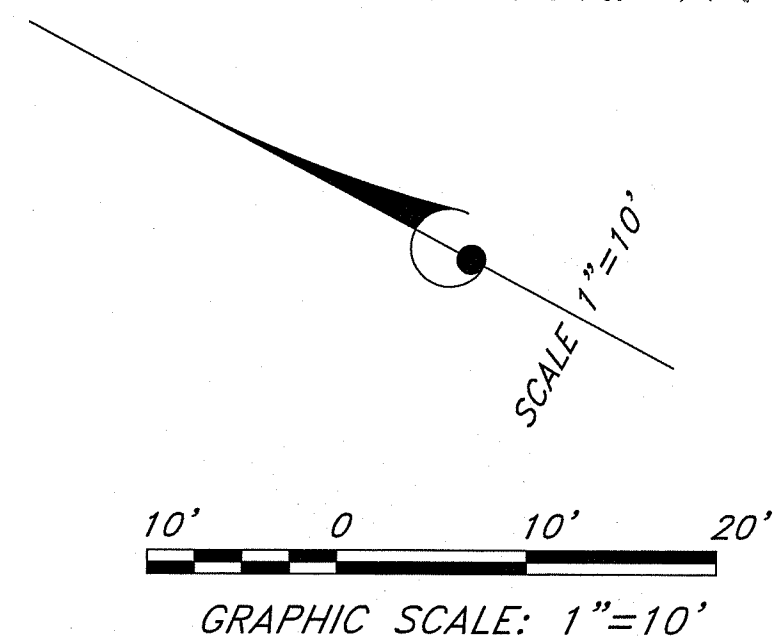


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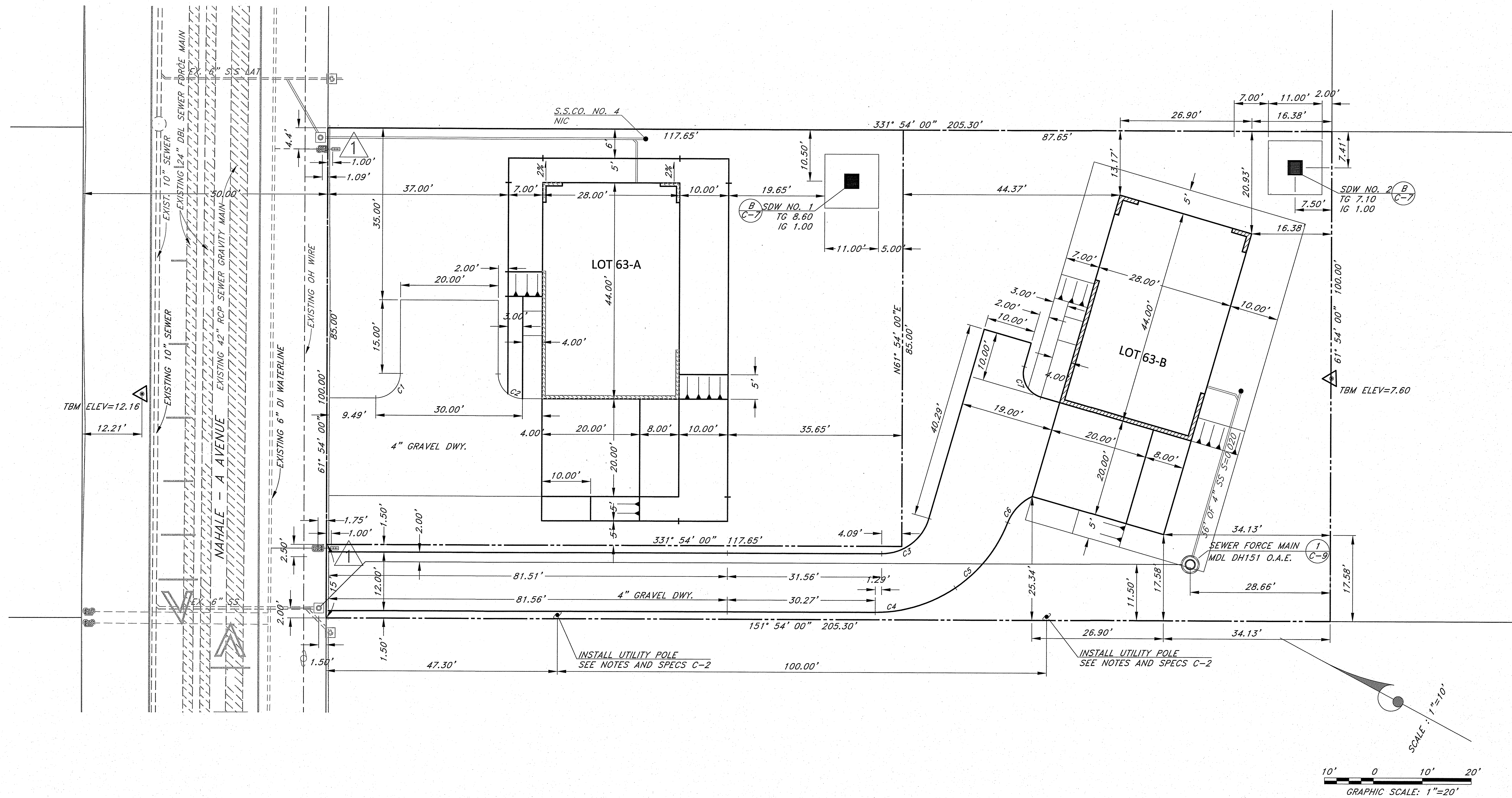
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SHEET No. 11  
OF 12 SHTS.





Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S73° 06' 00"E	7.07
C2	7.85	5.00	90.00	S16° 54' 00"W	7.07
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No.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, & 11	DRB	INSTALL BACKFLOW PREVENTER
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This work was prepared by me or under my supervision and construction of this project was under my observation.  
Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Professional Engineer  
No. 4004-C  
HAWAII

**DENNIS K. W. LEE**  
Professional Engineer  
No. 4004-C  
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**Project Title:** KEAUKAHA TRACT 1 IMPROVEMENTS LOT 63-A & 63-B DIMENSION PLAN

**Sheet Title:**

DESIGN BY:	DRB
DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
DATE:	NOV. 2015
SCALE:	AS NOTED
FILE No.	W1406.80

**DRAWING No.**  
**C-11**

**SHEET No.**  
**12**  
**OF 12** SHTS.

# KEAUKAHA TRACT 1 IMPROVEMENTS

LOTS 131-A-1, 131-A-2 & 131-A-3

KUHIO BAY

PUHI BAY

BANYAN DR

SILVA ST

KALANIANA'OLE ST

KAUPANE AVE

INAHALE AVE

DESHA AVE

LAUAE AVE

YUNG AVE

TODD AVE

KING AVE

LYMAN AVE

KRAUSS AVE

EWA'IKO AVE

KAPILI AVE

PROJECT LOCATION

HILO INTERNATIONAL AIRPORT

AIRPORT ROAD


HWY 11


TRUE NORTH

**LOCATION MAP**

NOT TO SCALE

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>DRAWING NO.</u>
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES & SPECIFICATIONS	C-2
4	WATER NOTES	C-3
5	WASTEWATER COLLECTION NOTES	C-4
6	GRADING PLAN LOT 131-A-1&2	C-5
7	UTILITY PLAN LOT 131-A-1&2	C-6
8	GRADING PLAN LOT 131-A-3	C-7
9	UTILITY PLAN LOT 131-A-3	C-8
10	SHALLOW DRYWELL DETAILS	C-9
11	SANITARY SEWER DETAILS	C-10
12	EROSION CONTROL (BMP) PLAN	C-11
13	DIMENSION PLAN LOT 131-A-1&2	C-12
14	DIMENSION PLAN LOT 131-A-3	C-13

  
\_\_\_\_\_  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

  
\_\_\_\_\_  
MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII *gx*

DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII

DATE: \_\_\_\_\_

**WRS**  
Wesley R. Sagawa and Associates, Inc.  
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**Civil & Structural Engineers**  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: **KEAUKAHA TRACT 1  
IMPROVEMENTS**

Sheet Title: **LOTS 131-A-1, 131-A-2 & 131-A-3  
TITLE SHEET**

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: 2015
SCALE: AS NOTED
FILE No. W1302.43

DRAWING No.  
T-1

SHEET No.  
1  
OF 14 SHTS.



GRADING NOTES:

1.

ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2.

THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
3.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
4.

ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5.

THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6.

FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7.

THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8.

NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
9.

FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10.

THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION:

20

CU. YDS.

TOTAL EMBANKMENT:

388

CU. YDS.

11.

THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

1.

UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
2.

ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
3.

CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
4.

ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
5.

ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
6.

RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
7.

CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

1.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
2.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
3.

THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
4.

FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
5.

THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
6.

THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
7.

ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
8.

A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
9.

NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
10.

NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
11.

EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
12.

ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
13.

NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
14.

SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

- A.

ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
- B.

IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
- C.

ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

1.

THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
2.

IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- A.

REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- B.

RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.
3.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.
4.

THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.
5.

STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

6.

DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

7.

SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

8.

INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

9.

PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COCN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TG	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

REVISIONS	
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DATE	PRINTS TO

This work was prepared by me or under my supervision and construction of this project was completed under my observation.  
Exp. 04-30-16

Wesley P. Segawa & Associates, Inc.

Wesley P. Segawa & Associates, Inc.

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Project Title:

KEAUKAHA TRACT 1  
IMPROVEMENTS

Sheet Title:

LOTS 131-A-1, 131-A-2 & 131-A-3  
MISCELLANEOUS NOTES

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DRAWING No.  
**C-1**

SHEET No.  
**2**  
OF **14** SHTS.



UTILITY POLE SPECIFICATIONS AND NOTES:

MAXIMUM-200 AMP SERVICE

IT SHALL BE THE CUSTOMER'S RESPONSIBILITY FOR COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY GOVERNING AUTHORITY FOR ALL EQUIPMENT BEYOND THE POINT OF CONNECTION. THE CUSTOMER IS ADVISED TO USE THE SERVICES OF A QUALIFIED ELECTRICIAN TO ASSURE COMPLIANCE WITH ALL CODES AND REGULATIONS.

1. DESCRIPTION:

PERMANENT - MOBILE HOMES, CAMPS, WATER WELLS, AND ANY OTHER CONNECTION NOT CONSIDERED TEMPORARY.

TEMPORARY - CONSTRUCTION, SPECIAL EVENTS, ETC.

2. METER POLES ARE FURNISHED AND INSTALLED BY CUSTOMER. SPECIFICATIONS SHOWN ON THE DRAWING AND DESCRIBED HERE SHALL BE CONSIDERED MINIMUM REQUIREMENTS.

3. PERMANENT METER POLES MUST BE 20' (FEET) IN LENGTH AND BE SET 5' (FEET) DEEP. A PERMANENT METER POLE MUST BE A TREATED ROUND POLE WITH A MINIMUM TOP DIAMETER OF 5" (INCHES) OR A TREATED 6" X 6" (INCH) POLE.

IT WILL BE THE RESPONSIBILITY OF THE CUSTOMER TO SECURE THE POLE IN A VERTICAL POSITION. IF THE GROUND IS NOT ADEQUATE TO SUPPORT THE POLE, A GUY WILL HAVE TO BE INSTALLED BY THE CUSTOMER.

4. TEMPORARY METER POLES MUST BE 16' (FEET) IN LENGTH AND BE SET 4' (FEET) DEEP. A TEMPORARY METER POLE MUST BE A TREATED POLE WITH A MINIMUM SIZE OF 4" X 6" (INCHES). A TEMPORARY METER POLE WITH A SERVICE LENGTH OF 75' (FEET) OR GREATER MUST BE BRACED AS SHOWN ON THE TEMPORARY METER POLE DRAWING.

5. SERVICE ENTRANCE CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. SERVICE ENTRANCE CONDUIT SHALL BE SCHEDULE 40 PVC OR RIGID CONDUIT, NO EMT, AND SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY. A MINIMUM OF 3 CONDUIT STRAPS ARE REQUIRED, WITH ONE (1) STRAP BEING NO MORE THAN 12" (INCHES) FROM THE WEATHER HEAD.

6. SERVICE ENTRANCE CONDUCTORS FROM THE POINT OF CONNECTION TO METER BASE, TO THE MAIN DISCONNECT, FURNISHED AND INSTALLED BY CUSTOMER.

SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER ONLY AND SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRIC CODE OR GOVERNING AUTHORITY.

THE NEUTRAL OF THE SERVICE ENTRANCE CONDUCTORS CAN BE TWO (2) SIZES SMALLER THAN THE OTHER CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY AND WHITE TAPE AT THE WEATHER HEAD AND IN THE METER BASE. AN EXTENSION OF 18" (INCHES) OF SERVICE CONDUCTOR IS REQUIRED AT THE WEATHER HEAD.

7. MAIN DISCONNECT, EITHER A SINGLE MAIN OR A MAIN IN A DISTRIBUTION PANEL, FURNISHED AND INSTALLED BY CUSTOMER. MAIN DISCONNECT SHALL BE SIZED ACCORDING TO LOAD, AS REQUIRED BY THE NATIONAL ELECTRICAL CODE OR GOVERNING AUTHORITY.

MAIN DISCONNECTS AND ANY OTHER ELECTRICAL EQUIPMENT THAT IS EXPOSED TO THE ELEMENTS MUST BE OF A WEATHERPROOF AND WATER TIGHT DESIGN.

8. METER BASE AND K-10 SERVICE HOLDER TO BE FURNISHED AND INSTALLED BY CUSTOMER. THEY MUST CONFORM TO HELCO STANDARDS AND BE COMPATIBLE WITH HELCO METERING. THE METER BASE SHALL BE MOUNTED BETWEEN 5' AND 6' (FEET) ABOVE FINISHED GRADE. THE K10C SHALL BE MOUNTED 6" (INCHES) FROM THE TOP OF THE METER POLE IN THE DIRECTION OF HELCO'S SERVICE CABLE. PRE-DRILLING A PILOT HOLE FOR THE K10C IS RECOMMENDED.

9. A METER BASE GROUND SHALL EXTEND FROM THE NEUTRAL OR GROUNDING LUG IN THE METER BASE TO GROUND ROD. THE METER BASE GROUND SHALL BE A MINIMUM #8, SOFT DRAWN COPPER WIRE. THE METER BASE GROUND WIRE MUST BE CONNECTED IN THE GROUND WIRE LUG, WHERE PROVIDED, AND NOT IN THE SERVICE NEUTRAL LUG. THE METER BASE GROUND WIRE MUST BE STAPLED EVERY SIX (6) INCHES.

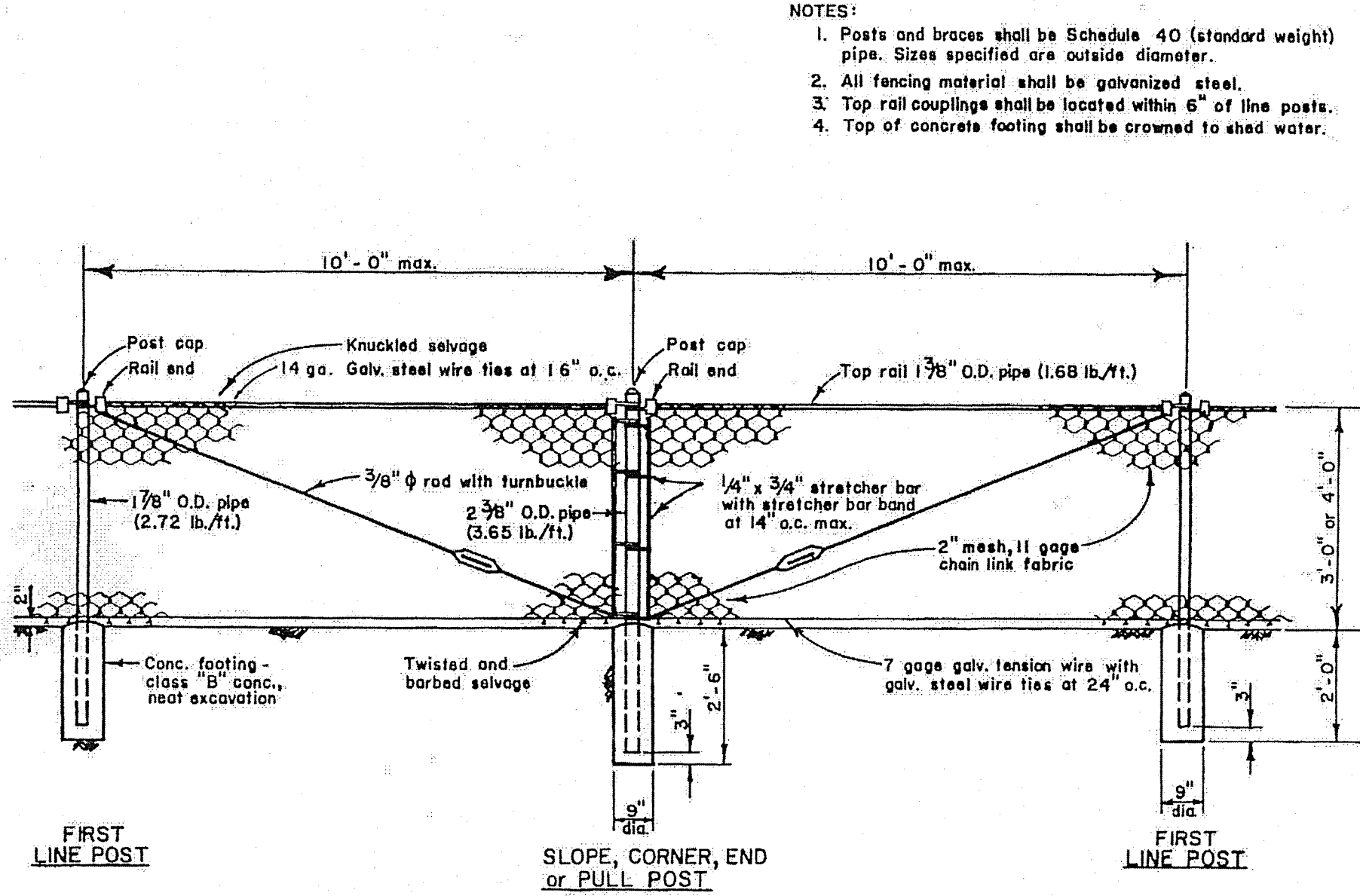
10. THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6, BARE, SOFT DRAWN COPPER WIRE AND EXTEND FROM 6" (INCHES) ABOVE THE TOP OF THE METER POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE FROM THE SERVICE ENTRANCE CONDUIT. THE POLE GROUNDING CONDUCTOR MUST BE STAPLED, STARTING FROM THE TOP OF THE POLE AT 2' (FOOT) INTERVALS UNTIL A POINT 6' (FEET) ABOVE THE GROUND IS REACHED, THEN STAPLED EVERY 6" (INCHES).

11. GROUND RODS SHALL BE 5/8" X 8" COPPER WELD OR 1/2" X 8" COPPER. PERMANENT METER POLE GROUND RODS SHALL BE SET 1" (INCH) BELOW FINISHED GRADE.

TEMPORARY METER POLE GROUND RODS CAN BE SET 4" (INCHES) ABOVE FINISHED GRADE.

12. ALL UNUSED OR OPEN HOLES IN THE METER BASE, MAIN DISCONNECTOR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS.

13. INSPECTION: IF A GOVERNING AUTHORITY REQUIRES INSPECTION, INSPECTION TAG MUST BE IN PLACE AND MARKED APPROVED BEFORE HELCO WILL CONNECT SERVICE.



1  
C-2 4' CHAIN LINK FENCE  
SCALE: NONE

REVISIONS		DATE	DWG. CHK.	DATE	PRINTS TO
No.					

This work was prepared by me or under my supervision and construction of this project was under my observation.  
Exp. 04-30-16

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS  
LOTS 131-A-1, 131-A-2 & 131-A-3  
Sheet Title: MISCELLANEOUS NOTES

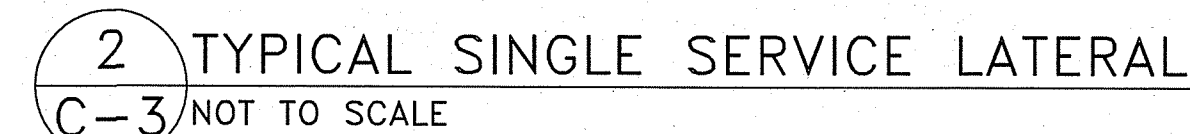
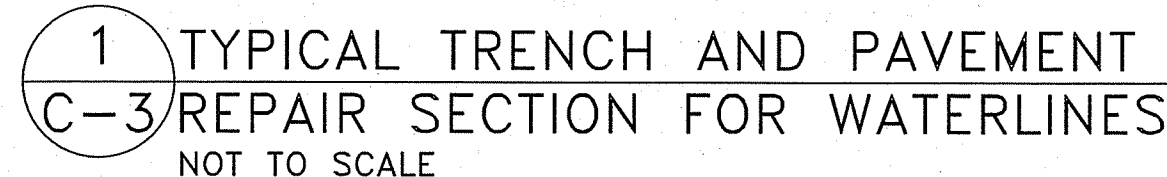
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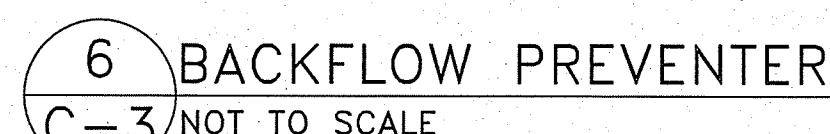
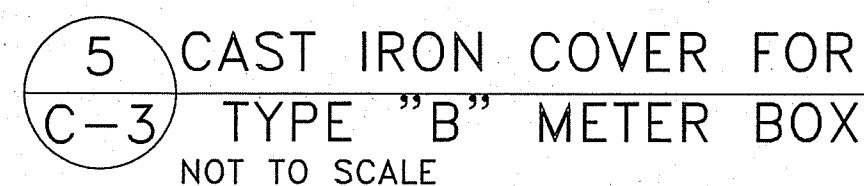
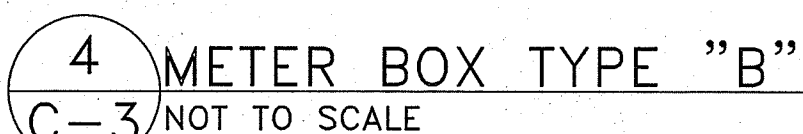
SHEET No.  
3  
OF 14 SHTS.



1. ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
2. ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
3. THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
4. ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
5. THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
6. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE - NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 50 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
8. ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
9. PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
10. METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAVEMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
11. RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
12. SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
13. LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
14. WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
16. AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
17. BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



3 SCHEDULE OF COPPER FITTINGS  
C-3 NOT TO SCALE





WASTEWATER COLLECTION SYSTEM NOTES:

- THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII (JULY 1972); THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, SEPTEMBER 1984 AND THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DULY AND LAWFUL PROSECUTION OF THE WORK.
- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY WRITTEN OTHERWISE.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS. ANY ADDITIONS, DELETIONS OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION.
- INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWO'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL DETECTABLE NEW CONSTRUCTION. CALL THE WASTEWATER DIVISION AT 961-8338 AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.
  - WHEN AND AS OFTEN AS THE WWD DETERMINES THROUGH THEIR INSPECTION PROCEDURES, MATERIAL, EQUIPMENT OR WORKMANSHIP DO NOT MEET THE REQUIREMENTS, THE WWD WILL GIVE WRITTEN NOTICE OF THE NONCOMPLIANCE TO THE CONTRACTOR AND IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.
  - INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING OF THE PIPE AND AFTER ALL PLUMBING WORK, IN ACCORDANCE WITH THE PLUMBING PERMIT, IS COMPLETE WITHIN THE PARCEL.
- SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWAII HOLIDAYS. IF SUCH WORK DICTATES PERFORMANCE ON THESE NON-WORKING DAYS AND AFTER NORMAL HOURS (3:30 PM TO 7:00 AM) OF OPERATION THEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
- ALL EXISTING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, IF DAMAGED DURING CONSTRUCTION, SHALL BE REPAIRED BY THE CONTRACTOR AND THE CONTRACTOR SHALL PAY ALL EXPENSES.
- BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. THE CONTRACTOR SHALL PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
- THE CONTRACTOR SHALL BE OR HAVE IN PERSON ON THE JOB SITE OR BE REPRESENTED BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
- AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY, AND UPON COMPLETION OF THE WORK, REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND.

SEWER SYSTEM REQUIREMENTS

- SEWER MAIN PIPE AND FITTINGS:
  - ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT OR AN APPROVED EQUAL.
  - LAYING OF PIPE SHALL COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM. PIPE SHALL BE FITTED TOGETHER AND MATCHED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.
  - THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE BEFORE LEAVING THE WORKPLACE FOR THE NIGHT.
  - BECAUSE OF THE NATURE OF PLASTIC PIPE AND FILLINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.
- TRENCH, PIPE BEDDING, AND BACKFILL:
  - TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLAN.
  - PIPE BEDDING SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PLACED WITHIN TRENCH NOT LESS THAN 6 INCHES BUT NOT MORE THAN 8 INCHES IN COMPACTED THICKNESS, SHOULD PROVIDE UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE, AND SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY UNLESS OTHERWISE NOTED ON PLANS.
  - PIPE CUSHION SHALL BE CLASS B \*\*\* AGGREGATE BASE COURSE PROPERLY PLACED A MINIMUM OF 12" COMPACTED THICKNESS OVER THE TOP OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT WHILE AVOIDING VERTICAL AND LATERAL DISPLACEMENT.
  - CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLAN OR APPROVED BY THE WWD ENGINEER.
  - COMPACTION TESTING FOR BASE COURSE MATERIAL SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TESTING SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET OR A FRACTION THEREOF. THE ENGINEER RESERVES THE RIGHT TO INCREASE THE FREQUENCY OF COMPACTION TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR AS PART OF THE FINAL ACCEPTANCE.

3. SEWER LATERAL PIPE AND FITTINGS:

- NEW SEWER LATERALS AND CLEANOUT SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.
- SEWER CLEANOUTS SHALL BE LOCATED IN THE *COUNTY RIGHT-OF-WAY* WITHIN ONE FOOT OF THE PROPERTY LINE. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS).
- THE CLEANOUT SHALL BE PROVIDED A BRASS COUNTERSUNK CAP AND AN 18"X18"X18" CLASS B CONCRETE COLLAR REINFORCED WITH 1-#3 REINFORCEMENT STEEL LOOP. REFER WWD STANDARD DETAIL WW-2. IN THE EVENT THAT THE CLEANOUT IS INSTALLED WITHIN A SIDEWALK OR SIMILAR AREA HAVING CONCRETE SURFACES, THE CONCRETE COLLAR IS NOT REQUIRED.
- IF A CLEANOUT IS SUBJECT TO VEHICULAR OR ABNORMAL LOADING IT SHALL BE PROVIDED A TRAFFIC RATED FRAME/COVER (MODEL SBF 1246W, MANUFACTURED BY SOUTH BAY FOUNDRY OR APPROVED EQUAL) AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. REFER WWD STANDARD DETAIL WW-4.
- SEWER LATERAL CONNECTIONS TO AN EXISTING SEWER MAIN MAY BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE. ROTATED 45 DEGREES ABOVE THE SEWER SPRING LINE. SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY SHALL PROVIDE A SMOOTH AND UNOBSTRUCTED FLOW AREA. THE SEWER SADDLE SHALL COMPLETELY OVERLAY THE CORE ENTRY AREA ON THE MAIN SEWER PIPE. THE SADDLE SHALL BE SECURED TO THE MAIN SEWER PIPE WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS 8 REINFORCED CONCRETE. THE REINFORCED JACKET SHALL COMPLETELY ENCASE THE EXISTING MAIN SEWER PIPE, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" BEYOND THE SEWER SADDLE.

4. SEWER LINE ACCEPTANCE TEST:

- ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.
- LEAKAGE TESTING SHALL BE ACCOMPLISHED WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR TESTING SHALL BE BORNE BY THE CONTRACTOR.
- AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE WWD, A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION.
  - THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR CLEANING OF THE LINES TO REMOVE ALL DEBRIS PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE INSPECTION AND ANY SUBSEQUENT INSPECTIONS WILL BE SUBJECT TO CHARGES TO THE CONTRACTOR.
  - THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.
  - IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS SAGS, DENTS, OUT-OF-ROUND, ETC. THEN, MANDREL TESTING IN ACCORDANCE WITH SECTION 21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 WILL BE REQUIRED AT WHICH THE COST WILL BE BORNE BY THE CONTRACTOR.
  - CCTV INSPECTIONS WILL BE RECORDED IN VHS OR CDROM FORMAT. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.

5. FINAL PROJECT SUBMITTALS:

- UPON FINAL PROJECT ACCEPTANCE SUBMIT TO WWD ONE (1) SET OF "AS-BUILT" PLANS ON VELLUM AND TWO (2) COPIED SETS AND ONE (1) SET OF ELECTRONIC DRAWINGS IN AUTOCAD 2009 VERSION AND (1) SET OF ELECTRONIC DRAWINGS IN ADOBE PDF FORMAT.
- IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES, LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

CLEARING AND GRUBBING NOTES

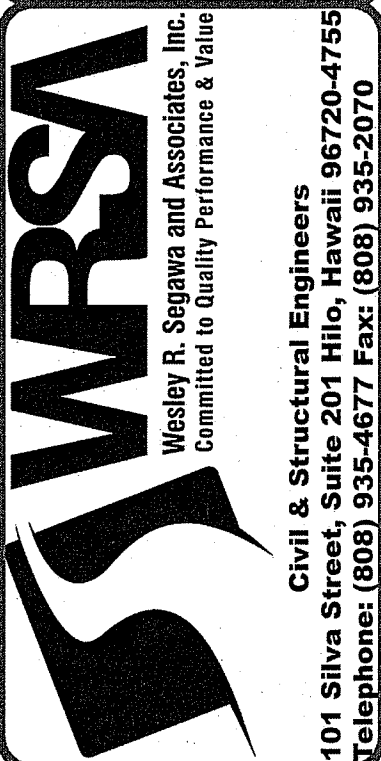
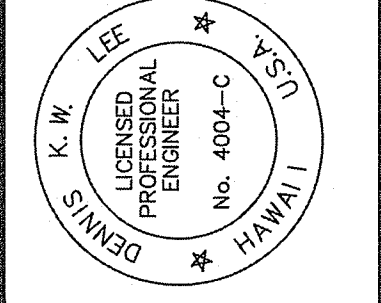
- CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL GROUND SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
- CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
- GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
- DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
- CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
- LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
- REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.

DIVISION CHIEF, WASTEWATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

DATE

REVISONS		DWG. CHK.		DATE		DATE		PRINTS TO	

This work was prepared by me or under my direct supervision and the project will be under my observation.  
Exp. 04-30-16  
*Wesley R. Segawa*  
Wesley R. Segawa & Associates, Inc.

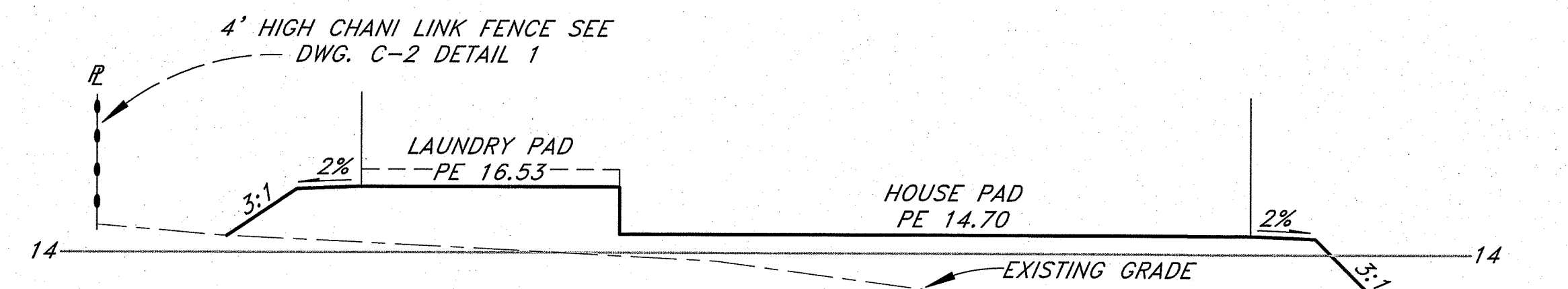


Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 131-A-1, 131-A-2 & 131-A-3  
Sheet Title: W.W.C. SYSTEM NOTES

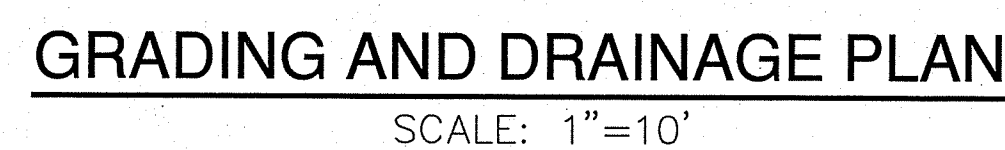
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DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
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FILE No. W1302.43

DRAWING No.  
**C-4**  
SHEET No.  
**5**  
OF **14** SHTS.

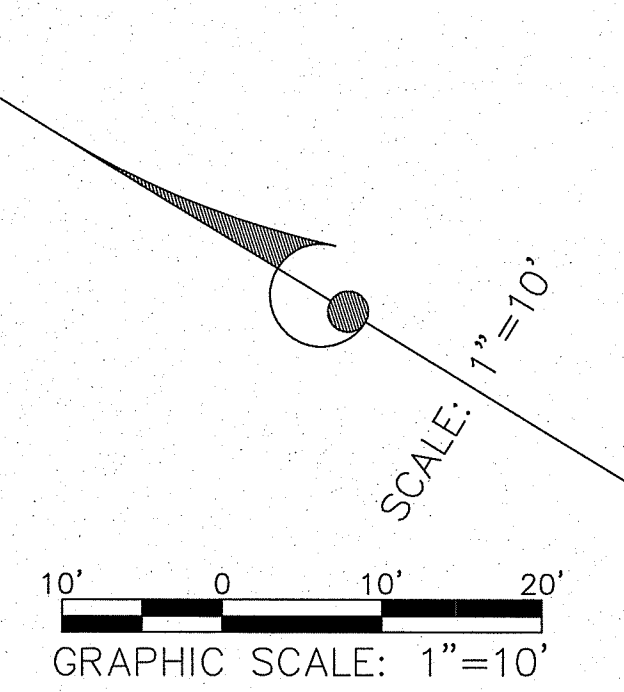
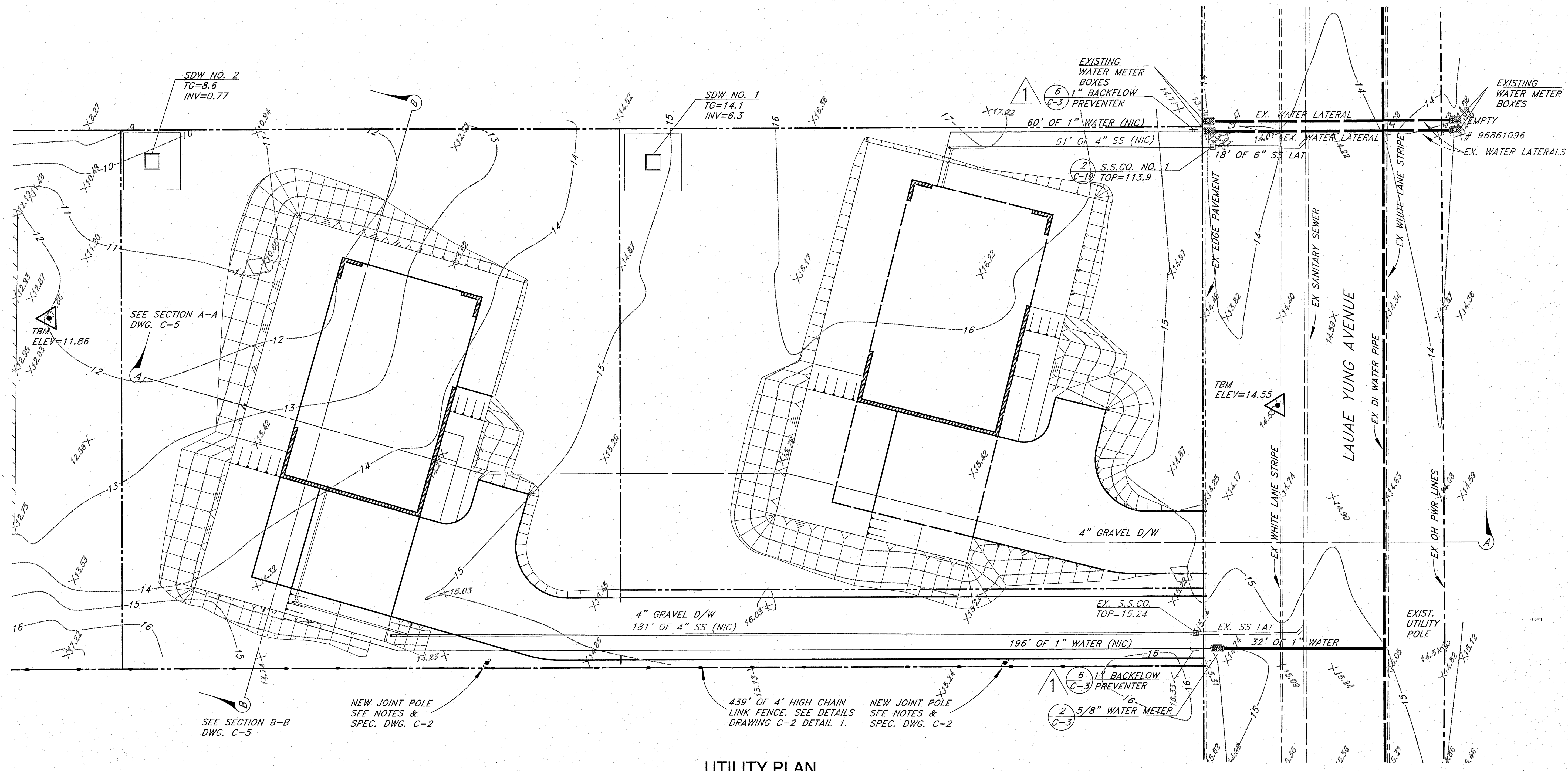




<i>Curve #</i>	<i>Length</i>	<i>Radius</i>	<i>Delta</i>	<i>Chord Direction</i>	<i>Chord Length</i>
<i>C1</i>	<i>7.85</i>	<i>5.00</i>	<i>90.00</i>	<i>S57° 00' 00"E</i>	<i>7.07</i>
<i>C2</i>	<i>18.52</i>	<i>10.00</i>	<i>106.10</i>	<i>S24° 57' 00"W</i>	<i>15.98</i>
<i>C3</i>	<i>7.02</i>	<i>25.00</i>	<i>16.10</i>	<i>S20° 03' 00"E</i>	<i>7.00</i>
<i>C4</i>	<i>18.17</i>	<i>10.00</i>	<i>104.13</i>	<i>S23° 57' 58"W</i>	<i>15.77</i>
<i>C5</i>	<i>7.85</i>	<i>5.00</i>	<i>90.00</i>	<i>S58° 58' 02"E</i>	<i>7.07</i>
<i>C6</i>	<i>6.17</i>	<i>25.00</i>	<i>14.13</i>	<i>S21° 02' 02"E</i>	<i>6.15</i>







UTILITY PLAN  
SCALE: 1"=10'

NO.	DATE	DWG.	CHK.	REVISIONS
1	4/15/2016	3, 5, 6, 7, 8, 12 & 13	DL	INSTALL BACKFLOW PREVENTER

DATE	PRINTS TO

This work was prepared by me or under my supervision and certification of this project will be under my observation.  
Exp. 04-30-16

**Wesley R. Sagawa & Associates, Inc.**  
Wesley R. Sagawa, P.E.  
No. 4004-C  
HAWAII

**WRSA**  
Civil & Structural Engineers  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 131-A-1, 131-A-2 & 131-A-3

Sheet Title: UTILITY PLAN - LOT 131-A-1 & 2

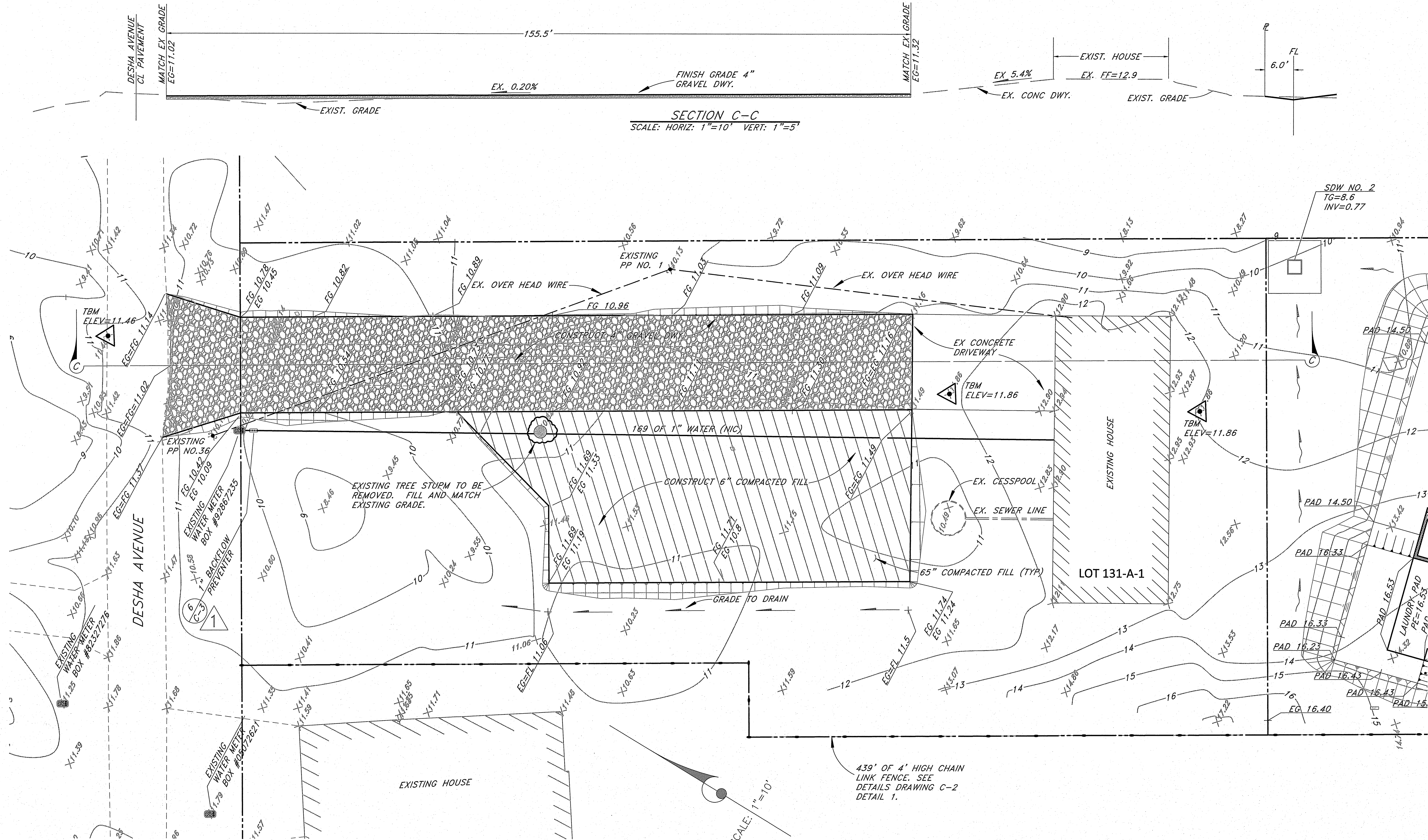
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DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
DATE:	2015
SCALE:	AS NOTED
FILE No.	W1302.43

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**C-6**

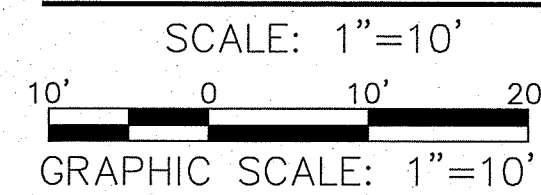
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7  
OF 14 SHEETS.





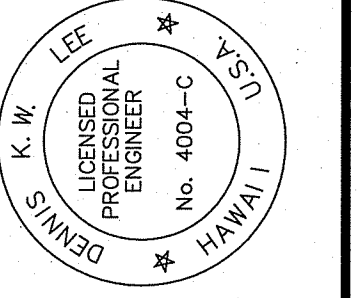
SECTION C-C  
SCALE: HORIZ. 1"=10' VERT. 1"=5'

GRADING PLAN



NO.	DATE	CHK.	REVISIONS
1	4/5/2016	DL	INSTALL BACKFLOW PREVENTER
2	3, 5, 6, 7, 8, 12 & 13	DL	
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Exp. 04-30-16  
Wesley R. Segawa & Associates, Inc.



**WRSA**  
Wesley R. Segawa and Associates, Inc.  
Civil & Structural Engineers  
101 Sila Street, Suite 200, Honolulu, HI 96813  
Telephone: (808) 935-4677 Fax: (808) 935-5070

Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 131-A-1, 131-A-2 & 131-A-3  
Sheet Title: GRADING PLAN - LOT 131-A-3

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
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FILE No. W1302.43

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OF 14 SHTS.



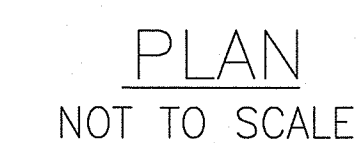
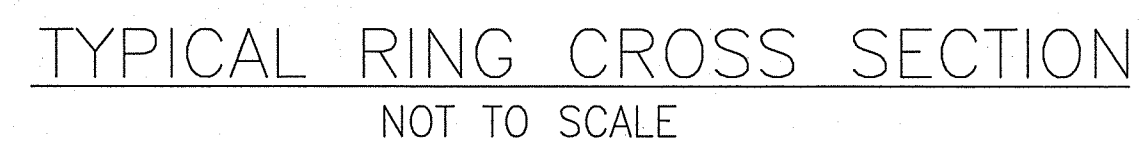






NOTES:

1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
2. AFTER DRYWALL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.



CONCRETE DRYWELL DETAIL  
NOT TO SCALE

No.	DATE	DWG.	CHKD.	REVISIONS
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△				
DATE				PRINTS TO

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Wm. C. W. Lee

A circular professional seal for K. W. Lee, a Licensed Professional Engineer in the State of Hawaii. The seal features the text "K. W. LEE" at the top, "LICENSED PROFESSIONAL ENGINEER" in the center, "No. 4004-C" at the bottom, and "STATE OF HAWAII" around the perimeter. Two stars are positioned on the right side of the seal.

**WRSA**  
Wesley R. Sogawa and Associates, Inc.  
Committed to Quality Performance & Value

**Civil & Structural Engineers**  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 131-A-1, 131-A-2 & 131-A-3 SHALLOW DRYWELL DETAILS

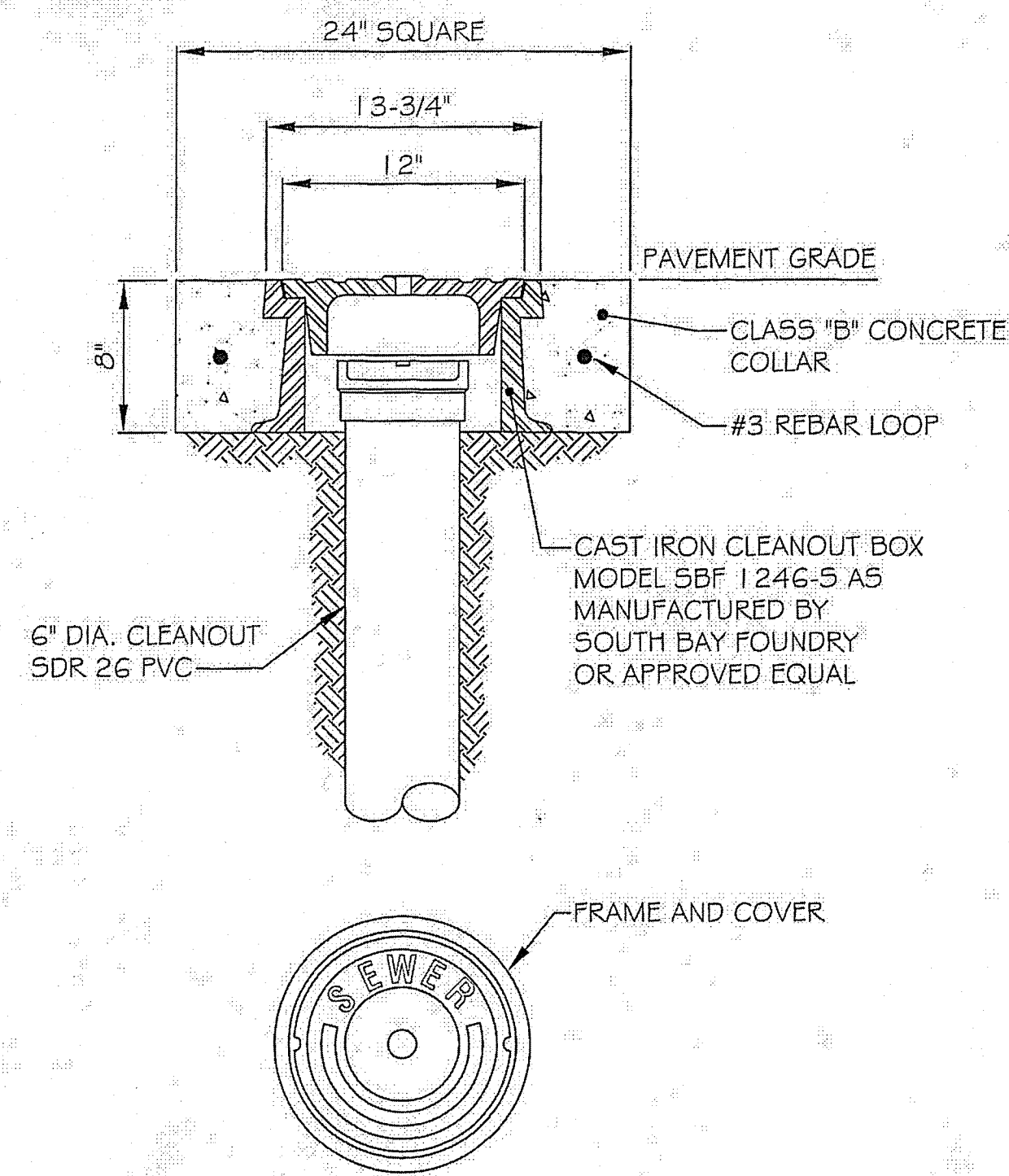
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DATE: 2015
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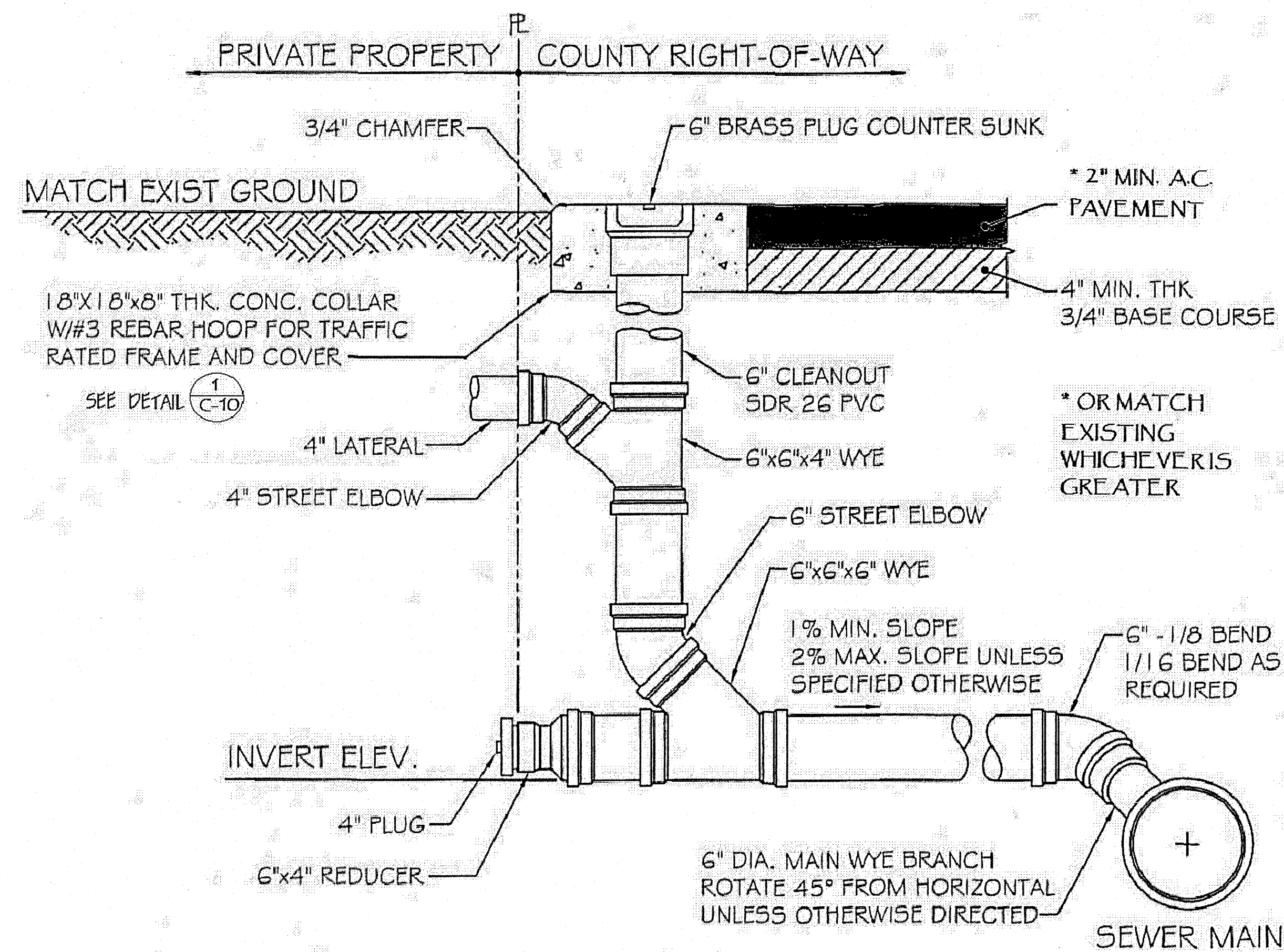
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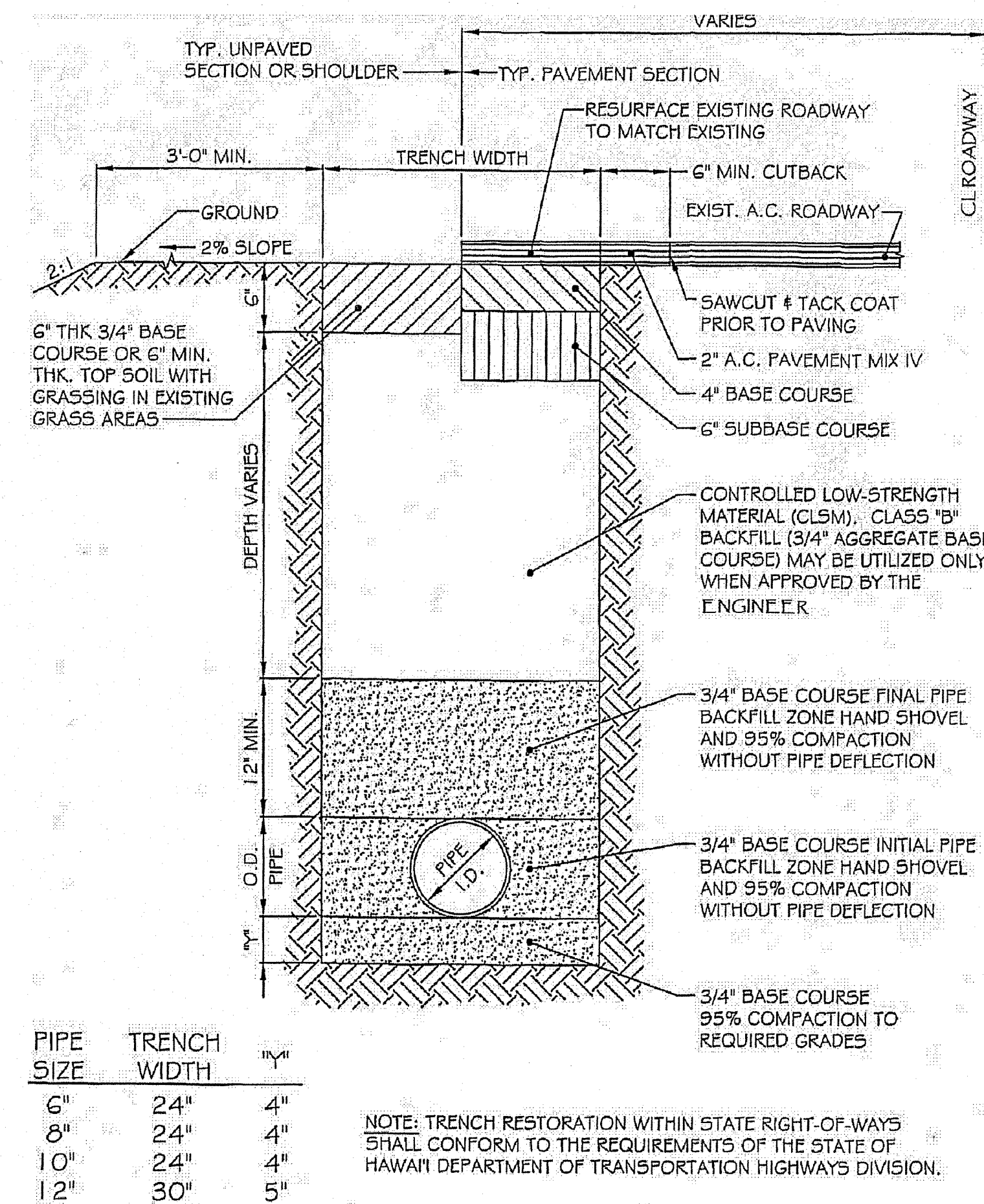




1  
C-10 TYPICAL TRAFFIC RATED FRAME & COVER  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE



2  
C-10 TYPICAL LATERAL & CLEANOUT DETAIL  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE



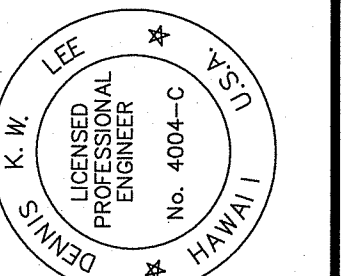
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C-10 TYPICAL TRENCH DETAIL  
COUNTY ROADS  
(COUNTY OF HAWAII, ENVIRONMENTAL MANAGEMENT,  
WASTEWATER DIVISION)  
NOT TO SCALE

DIVISION CHIEF, WASTEWATER DIVISION  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
COUNTY OF HAWAII

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Exp. 04-30-16  
Wesley F. Segawa & Associates, Inc.  
Wesley F. Segawa & Associates, Inc.



**WRSA**  
Wesley F. Segawa and Associates, Inc.  
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Civil & Structural Engineers  
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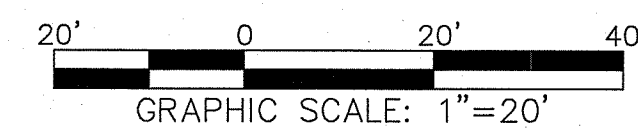
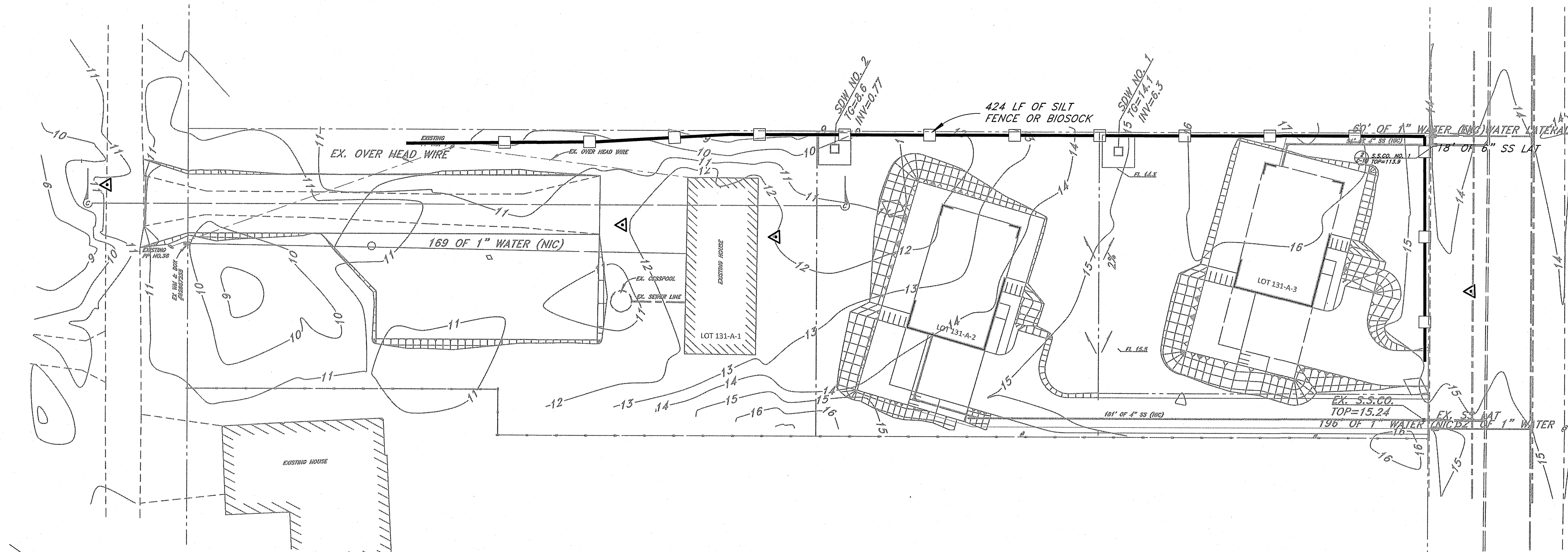
Project Title: KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 131-A-1, 131-A-2 & 131-A-3  
Sheet Title: SANITARY SEWER DETAILS

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
SCALE: AS NOTED  
FILE No. W1302.43

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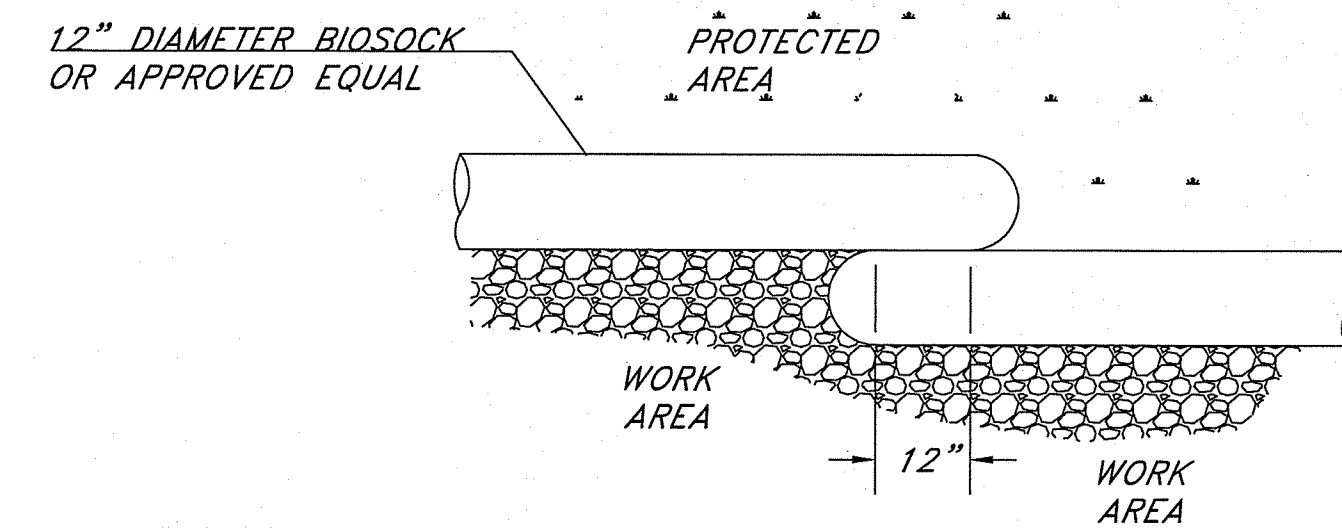
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OF 14 SHTS.



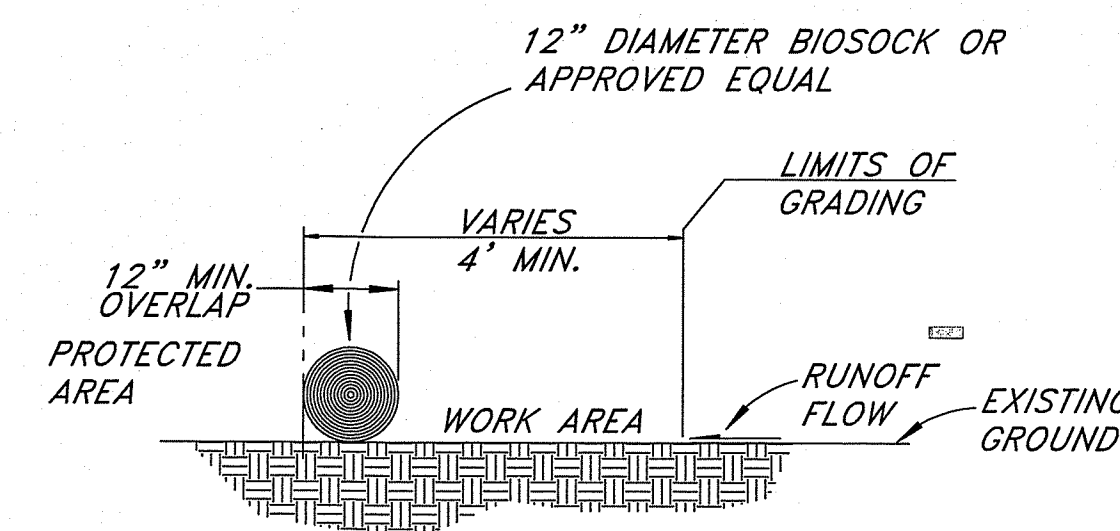


#### LEGEND:

SILT FENCE/BIOSOCK

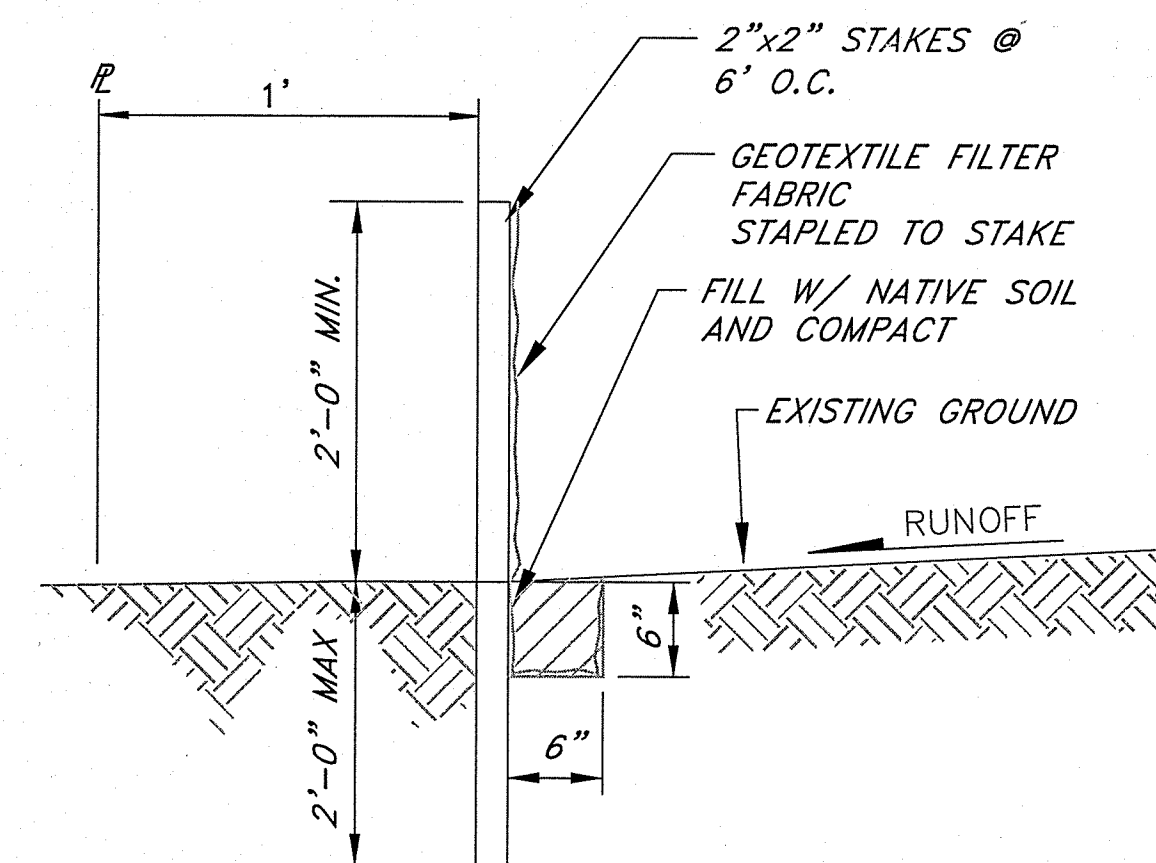


PLAN VIEW



ELEVATION VIEW

**BIOSOCK DETAIL (12" DIA)**  
NOT TO SCALE



#### SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.

AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

**SILT FENCE DETAIL**  
NO SCALE

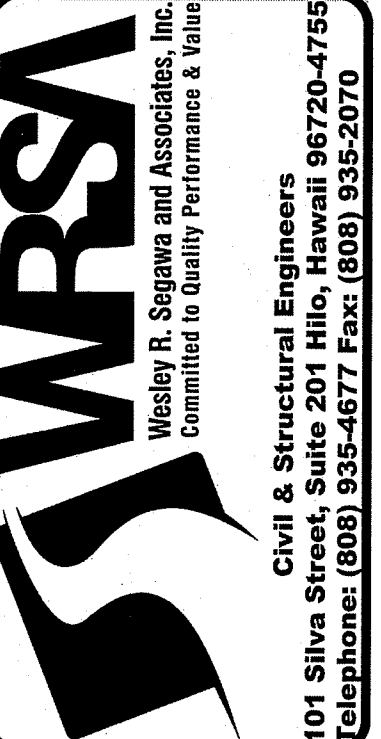
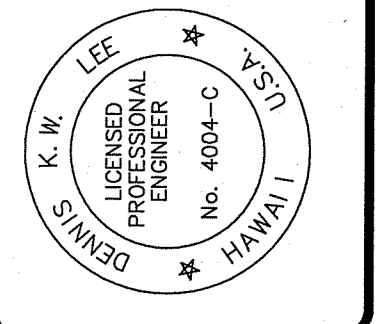
#### EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12" WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS SILT FENCE OR BIOSOCKS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

NO.	DATE	DWG. CHK.	REVISIONS
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This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My License No. is 4004-C. My Exp. Date is 04-30-16.

**Wesley R. Sagawa & Associates, Inc.**  
Wesley R. Sagawa, P.E.  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070



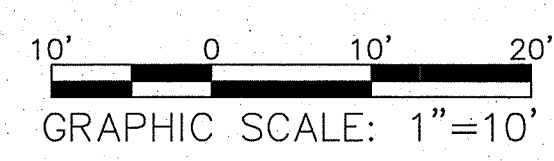
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Sheet Title: **LOTS 131-A-1, 131-A-2 & 131-A-3 EROSION CONTROL (BMP) PLAN**

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: 2015  
SCALE: AS NOTED  
FILE No. W1302.43

DRAWING No. **C-11**

SHEET No. **12**  
OF **14** SHTS.



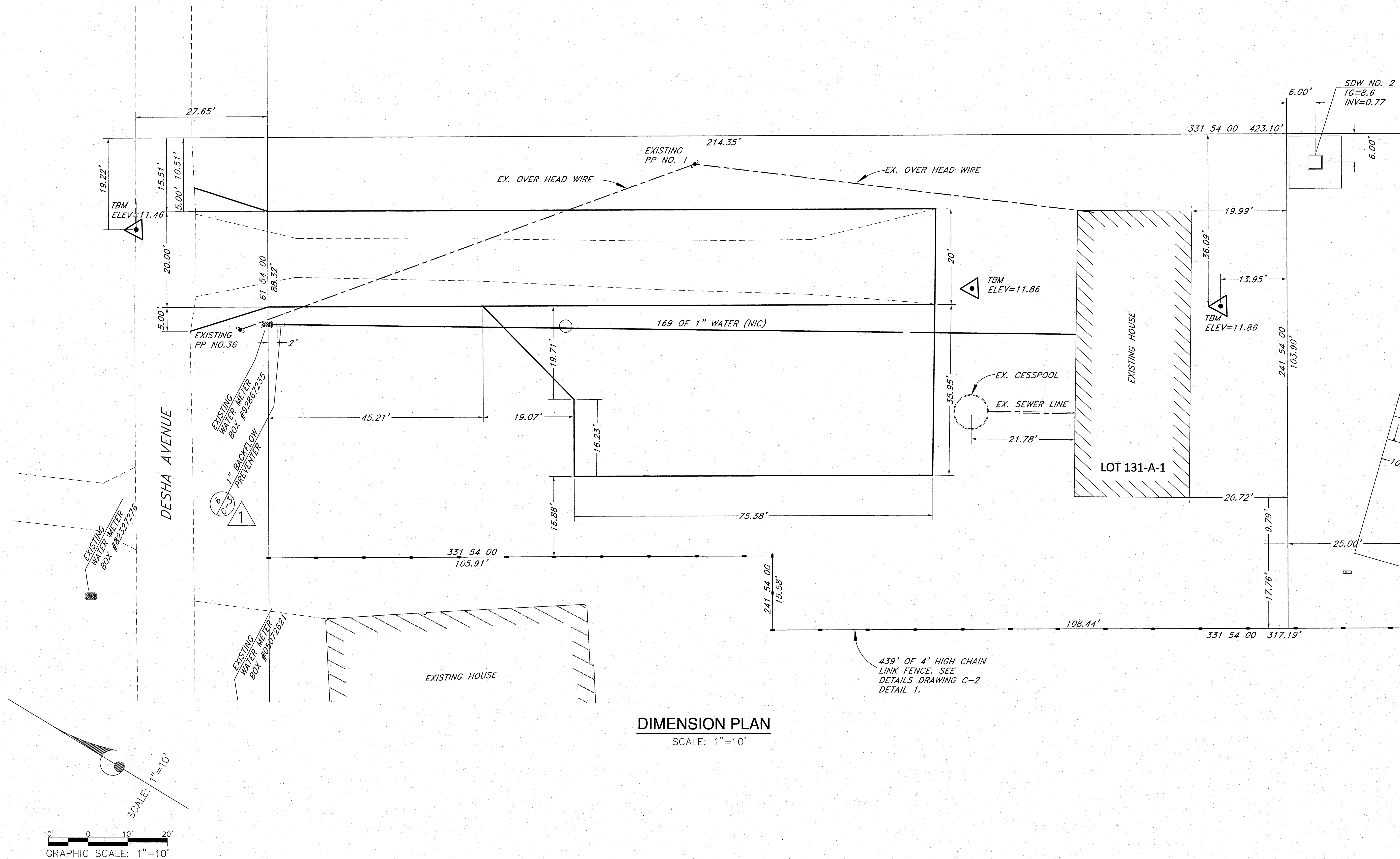


Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S57° 00' 00"E	7.07
C2	18.52	10.00	106.10	S24° 57' 00"W	15.98
C3	7.02	25.00	16.10	S20° 03' 00"E	7.00
C4	18.17	10.00	104.13	S23° 57' 58"W	15.77
C5	7.85	5.00	90.00	S58° 58' 05"E	7.07
C6	6.17	25.00	14.13	S21° 02' 02"E	6.15

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	7.85	5.00	90.00	S57° 00' 00"E	7.07
C2	18.52	10.00	106.10	S24° 57' 00"W	15.98
C3	7.02	25.00	16.10	S20° 03' 00"E	7.00
C4	18.17	10.00	104.13	S23° 57' 58"W	15.77
C5	7.85	5.00	90.00	S58° 58' 05"E	7.07
C6	6.17	25.00	14.13	S21° 02' 02"E	6.15

SHEET No. 13  
OF 14 SHTS.





NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 5, 6, 7, 8, 12 & 13	DL	INSTALL BACKFLOW PREVENTER
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20				

This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My license number is 4004-C. I am not providing this work for any other project without my written consent.

Wesley R. Segawa & Associates, Inc.

Wesley R. Segawa, P.E.

Professional Engineer License No. 4004-C

HAWAII

**WRSA**

Wesley R. Segawa and Associates, Inc.

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Civil & Structural Engineers

commitment to quality performance & value

Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS LOTS 131-A-1, 131-A-2 & 131-A-3

Sheet Title: DIMENSION PLAN LOT 131-A-3

DESIGN BY: DRB

DRAWN BY: DRB

CHECKED BY: DL

APPROVED BY: DL

DATE: 2015

SCALE: AS NOTED

FILE No. W1302.43

DRAWING No. C-13

SHEET No. 14 OF 14 SHTS.



# KEAUKAHA TRACT 1 IMPROVEMENTS

## LOT 279-A & 279-B

PUHI BAY

KUHO BAY

BANYAN DR

KALANIANAʻOLE ST

KŪHANE AVE

PĀ AVE

NANALE AVE

DESHA AVE

LAUAE YUNG AVE

TODD AVE

KING AVE

LYMAN AVE

KRAUSS AVE

KAPLI AVE

HILO INTERNATIONAL AIRPORT

AIRPORT ROAD

HWY 11

PROJECT LOCATION

TRUE NORTH

**LOCATION MAP**

NOT TO SCALE

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>DRAWING NO.</u>
1	TITLE SHEET	T-1
2	MISCELLANEOUS NOTES	C-1
3	UTILITY POLE NOTES AND SPECIFICATIONS	C-2
4	WATER NOTES & DETAILS	C-3
5	GRADING AND DRAINAGE PLAN	C-4
6	UTILITY PLAN	C-5
7	SHALLOW DRYWELL DETAILS	C-6
8	EROSION CONTROL (BMP) PLAN	C-7
9	DIMENSION PLAN	C-8

APPROVED BY:

CHAIRMAN, HAWAIIAN HOMES COMMISSION  
STATE OF HAWAII

MANAGER, CHIEF-ENGINEER, DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII **6.4.**

DIRECTOR, PLANNING DEPARTMENT  
COUNTY OF HAWAII

FOR GRADING PURPOSES ONLY:

DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF HAWAII

DATE:

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

[illegible]

This work was prepared by me or under my supervision and construction of this project will be under my observation.  
xp. 04-30-16

Wesley R. Segawa & Associates, Inc.

Wesley R. Segawa

A circular professional engineer seal for the State of Hawaii. The outer ring contains the text "DENNIS K. W. LEE" on the left and "HAWAII" on the right, separated by two stars. The inner circle contains the text "LICENSED PROFESSIONAL ENGINEER" and "No. 4004-C". The letters "U.S.A." are at the top of the inner circle.

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KEAUKAHA TRACT 1  
IMPROVEMENTS  
LOTS 279-A & 279-B  
TITLE SHEET

Project Title:

DESIGN BY: DRB
DRAWN BY: DRB
CHECKED BY: DL
APPROVED BY: DL
DATE: SEPT. 2015
SCALE: AS NOTED
FILE No. W1302.47

DRAWING No.  
T-1

SHEET No.  
1  
OF 9 SHTS.



GRADING NOTES:

1.

ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2.

THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW, SHALL BE PAYABLE BY THE CONTRACTOR.
3.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, and FUGITIVE DUST.
4.

ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5.

THE CONTRACTOR SHALL SOD OR PLANT ALL SLOPES AND EXPOSED AREAS IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
6.

FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
7.

THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
8.

NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER. GRADING WORK ON NORMAL WORKING DAYS SHALL BETWEEN THE HOURS OF 7:00 A.M. TO 3:00 P.M.
9.

FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
10.

THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL EXCAVATION:

0

CU. YDS.

TOTAL EMBANKMENT:

566

CU. YDS.

11.

THE QUANTITIES SHOWN ARE FOR GRADING PERMIT PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT QUANTITIES FOR BIDDING PURPOSES.

EARTHWORK QUANTITIES SHOWN WERE TAKEN FROM EXISTING GROUND TO FINISH GRADE.

TOTAL AREA TO BE GRADED 0.22 ACRES

SOLID WASTE CONSTRUCTION NOTES:

1.

UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THIS CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL. ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS
2.

ALL WASTES GENERATED BY CONSTRUCTION, INCLUDING GRUBBING, DEMOLITION AND EXCESS EXCAVATION MATERIAL MAY BE BROUGHT TO THE WEST HAWAII OR THE HILO LANDFILL. THE CONTRACTOR SHALL CHECK WITH THE SOLID WASTE DIVISION FOR DISCLOSURE OF THE CURRENT LANDFILL FEE AND CONSIDERATION OF THAT FEE SHALL BE INCLUDED IN THE CONTRACTOR'S BID SUM.
3.

CONSTRUCTION, DEMOLITION AND GRUBBING MATERIAL SHALL NOT BE DEPOSITED AT ANY OF THE COUNTY TRANSFER STATIONS, BUT SHALL BE TRANSPORTED FOR DISPOSAL AT EITHER THE WEST HAWAII OR HILO LANDFILL.
4.

ASBESTOS MATERIAL MUST BE SEPARATED, DOUBLE BAGGED AND LANDFILLED IN ACCORDANCE WITH REGULATIONS OF THE SOLID WASTE DIVISION, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. INFORMATION MAY BE OBTAINED BY CALLING THE DIVISION AT (808) 961-8339 BETWEEN 7:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY.
5.

ALL GREEN WASTE GENERATED FROM GRUBBING WORK, SHALL BE SEPARATED AND DEPOSITED AT THE GREEN WASTE AREA AT THE HILO OR WEST HAWAII DISPOSAL SITE. (NOTE: NO TREATED LUMBER IS ALLOWED IN THE GREEN WASTE)
6.

RECYCLE AS MUCH OF THE SOLID WASTE MATERIAL GENERATED BY THIS CONSTRUCTION AS POSSIBLE. EXCESS MATERIAL SHALL BE DISPOSED OF PROPERLY.
7.

CONTRACTOR SHALL SUBMIT A REPORT PRIOR TO THE COMMENCEMENT OF WORK, PER SOLID WASTE DEMOLITION PLAN GUIDELINES, AS AMMENDED. AVAILABLE AT THE COUNTY OF HAWAII, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE.

NOTES FOR WORK WITHIN THE ROAD-OF-WAY

1.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLAN OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PARACTICES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES.
2.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," AND AS DIRECTED BY THE ENGINEER.
3.

THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE ENGINEER.
4.

FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
5.

THE CONTRACTOR SHALL PROVIDE AT LEASE ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. TO 8:00 A.M.
6.

THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK.
7.

ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE ENGINEER.
8.

A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE ENGINEER.
9.

NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
10.

NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
11.

EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
12.

ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER.
13.

NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
14.

SHOULD TRENCING OCCUR THROUGH AN EXISTING SIDEWALK, OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF ANY CONSTRUCTION WORK, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:

- A.

ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL FIRST BE CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.
- B.

IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR IT'S REPRESENTATIVE.
- C.

ANY DAMAGES TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE CONSTRUCTION WORK SHALL BE PROPERLY REPAIRED AND CORRECTED.

STRUCTURAL BEST MANAGEMENT PRACTICES (BMPS):

1.

THE CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER 0.5 INCHES OF RAINFALL.
2.

IF REPAIRS TO OR MAINTENANCE OF THE CONTRACTOR'S EROSION CONTROL MEASURES ARE NECESSARY, THE CONTRACTOR SHALL INITIATE THE REPAIRS OR MAINTENANCE WITHIN TWENTY-FOUR (24) HOURS AFTER INSPECTION AND NOTING OF THE DEFICIENCY.

REPAIRS AND MAINTENANCE MAY INCLUDE THE FOLLOWING:

- A.

REPLACING GEO-JUTE FABRIC WHEN TEARS ARE FOUND, AND ENSURING THAT THE FABRIC IS SECURELY ATTACHED FIRMLY IN THE GROUND.
- B.

RESTORING BARE SPOTS AND WASHOUTS, AND ENSURING HEALTY PLANT GROWTH IN BOTH TEMPORARY AND PERMANENT SEEDED AND PLANTED AREAS.
3.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO INSTALL STRUCTURAL BMPS AS NEAR TO THE POLLUTANT SOURCE AS PRACTICABLE. INLET PROTECTION SHALL SERVE AS THE LAST MEASURE TO PREVENT POLLUTANTS FROM ENTERING THE STORM DRAIN SYSTEM.
4.

THE CONTRACTOR SHALL BACKFILL TRENCHES AND PROVIDE COLD MIX PATCHES TO MATCH ADJOINING PAVEMENT GRADE AT THE END OF EACH WORK DAY.
5.

STABILIZED CONSTRUCTION ENTRANCE:

ALL POINTS OF EGRESS AND INGRESS TO A SITE SHALL BE PROTECTED WITH A STABILIZED CONSTRUCTION ENTRANCE, 20' X 20' X 8" THICK CRUSHED ROCK LAYER OVER A GEOTEXTILE FABRIC BASE IN THE LOCATION(S) SHOWN ON THE EROSION CONTROL PLAN.

6.

DUST CONTROL:

DUST CONTROL, INCLUDING DUST BARRIERS, WATERING, ETC., SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL",

7.

SEDIMENT BARRIERS OR TRAPS:

SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED DOWN SLOPE OF ALL DISTURBED AREAS AND AROUND THE BASE OF ALL MATERIAL STOCKPILES.

8.

INLET PROTECTION:

ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.

9.

PERMANENT STABILIZATION:

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

LEGEND:

A.C.	ASPHALT CONCRETE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	OH	OVERHEAD
BOT.	BOTTOM	PAV'T	PAVEMENT
BW	BOTTOM WALL	PE	PAD ELEVATION
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COCN.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONARY	SMH	SEWER MANHOLE
D	DIAMETER OR DRAIN	SS	SANITARY SEWER
E/ELEC.	ELECTRIC	ST.	STREET
ELEV./E	ELEVATION	STA.	STATION
FFE	FINISH FLOOR ELEVATION	TB	TOP OF BOX
F.H.	FIRE HYDRANT	TC	TOP OF GRATE
G.P.	GUARD POST/GUY POLE/GATE POST	TP	TOP PIPE
H	HEIGHT	TS	TOP STEM
IG	INVERT GRADE	TV	TOP VALVE
INV.	INVERT	TW	TOP WALL
M.B.	MAIL BOX	U.P.	UTILITY POLE
MH	MANHOLE	U.P./S.L.	UTILITY POLE W/STREET LIGHT
MON	MONUMENT	W	WATER
		WM	WATER METER
		WMH	WATER MANHOLE
		WV	WATER VALVE BOX

No.	DATE	DWG. CHK.	REVISIONS
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△			
△			
DATE			PRINTS TO



MAXIMUM-200 AMP SERVICE

DESCRIPTION:

TEMPORARY - CONSTRUCTION, SPECIAL EVENTS, ETC.

PERMANENT METER POLES MUST BE 20' (FEET) IN LENGTH AND BE SET 5' (FEET) DEEP. A PERMANENT METER POLE MUST BE A TREATED ROUND POLE WITH A MINIMUM TOP DIAMETER OF 5" (INCHES) OR A TREATED 6" X 6" (INCH) POLE.

TEMPORARY METER POLES MUST BE 16' (FEET) IN LENGTH AND BE SET 4' (FEET) DEEP. A TEMPORARY METER POLE MUST BE A TREATED POLE WITH A MINIMUM SIZE OF 4" X 6" (INCHES). A TEMPORARY METER POLE WITH A SERVICE LENGTH OF 75' (FEET) OR GREATER MUST BE BRACED AS SHOWN ON THE TEMPORARY METER POLE DRAWING.

THE NEUTRAL OF THE SERVICE ENTRANCE CONDUCTORS CAN BE TWO (2) SIZES SMALLER THAN THE OTHER CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY AND WHITE TAPE AT THE WEATHER HEAD AND IN THE METER BASE. AN EXTENSION OF 18" (INCHES) OF SERVICE CONDUCTOR IS REQUIRED AT THE WEATHER HEAD.

MAIN DISCONNECTS AND ANY OTHER ELECTRICAL EQUIPMENT THAT IS EXPOSED TO THE ELEMENTS MUST BE OF A WEATHERPROOF AND WATER TIGHT DESIGN.

A METER BASE GROUND SHALL EXTEND FROM THE NEUTRAL OR GROUNDING LUG IN THE METER BASE TO GROUND ROD. THE METER BASE GROUND SHALL BE A MINIMUM #6, SOFT DRAWN COPPER WIRE. THE METER BASE GROUND WIRE MUST BE CONNECTED IN THE GROUND WIRE LUG, WHERE PROVIDED, AND NOT IN THE SERVICE NEUTRAL LUG. THE METER BASE GROUND WIRE MUST BE STAPLED EVERY SIX (6) INCHES.

THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6, BARE, SOFT DRAWN COPPER WIRE AND EXTEND FROM 6" (INCHES) ABOVE THE TOP OF THE METER POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE TO THE GROUND ROD. IT IS INSTALLED 90 AROUND THE POLE FROM THE SERVICE ENTRANCE CONDUIT. THE POLE GROUNDING CONDUCTOR MUST BE STAPLED, STARTING FROM THE TOP OF THE POLE AT 2' (FOOT) INTERVALS UNTIL A POINT 6' (FEET) ABOVE THE GROUND IS REACHED, THEN STAPLED EVERY 6" (INCHES).

GROUND RODS SHALL BE 5/8" X 8" COPPER WELD OR 1/2" X 8' COPPER. PERMANENT METER POLE  
GROUND RODS SHALL BE SET 1" (INCH) BELOW FINISHED GRADE.

TEMPORARY METER POLE GROUND RODS CAN BE SET 4" (INCHES) ABOVE FINISHED GRADE.

ALL UNUSED OR OPEN HOLES IN THE METER BASE, MAIN DISCONNECTOR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS.

INSPECTION: IF A GOVERNING AUTHORITY REQUIRES INSPECTION, INSPECTION TAG MUST BE IN PLACE AND MARKED APPROVED BEFORE HELCO WILL CONNECT SERVICE.

No.		DATE		DWG. CHK.		REVISIONS	
△							
△							
△							
DATE		PRINTS TO					

This work was prepared by me or under my direct supervision and the work on this project will be under my observation.  
Exp. 04-30-16

*Wesley K. Segawa*

Wesley R. Segawa & Associates, Inc.

U.S.A.  
HAWAII  
No. 4004-C  
LICENSED  
PROFESSIONAL  
ENGINEER  
K.W. LEE  
DEMISS

**WPSA**  
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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 279-A & 279-B UTILITY POLE NOTES & SPEC.

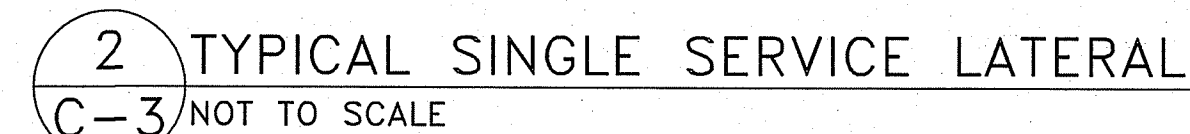
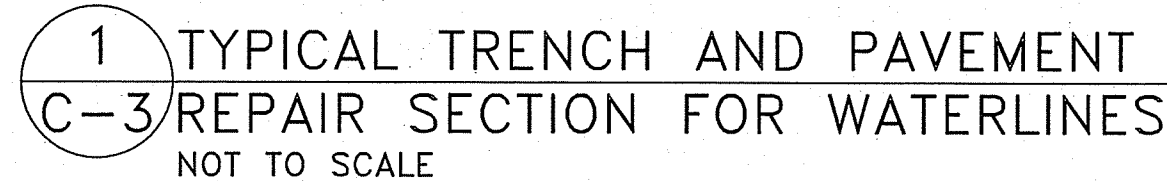
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APPROVED BY: DL
DATE: SEPT. 2015
SCALE: AS NOTED
FILE No. W1302.47

DRAWING No.  
**C-2**

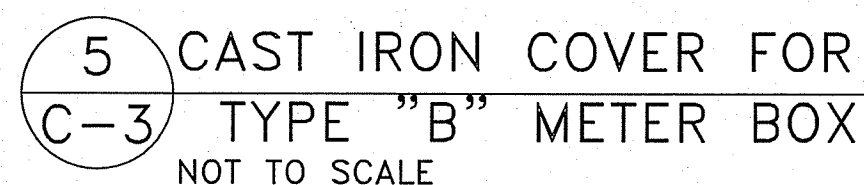
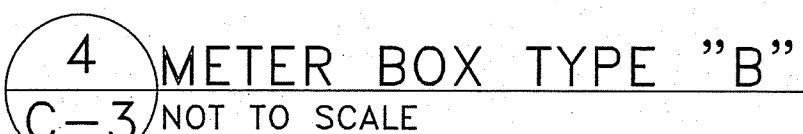
SHEET No. 3 OF 9 SHTS.



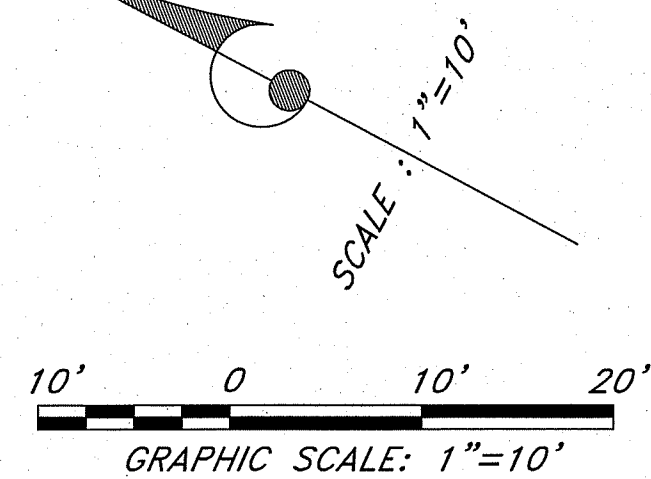
1. ALL WORK SHALL BE DONE ACCORDING TO THE WATER SYSTEM STANDARDS, STATE OF HAWAII, DATED 2002, AS AMENDED.
2. ALL EXISTING WATERLINES, WATERLINE, APPURTENANCES AND OTHER UTILITY LOCATIONS SHOWN ON THE PLANS ARE OBTAINED FROM THE LATEST RELIABLE SOURCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL UTILITIES IN THE FIELD AND SHALL BEAR ALL COSTS FOR DAMAGE DONE DURING THE CONTRACT PERIOD.
3. THE CONTRACTOR SHALL INFORM THE D.W.S. ENGINEER 72 HOURS PRIOR TO THE BEGINNING OF ANY WATERLINE WORK AND TWO WEEKS PRIOR TO ANY CONNECTION, CHLORINATION, SHUT-OFF OR RELOCATION WORK.
4. ALL CONNECTIONS TO THE WATER SYSTEMS SHALL BE DONE BY THE D.W.S. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, ROAD REPAIR, TRAFFIC CONTROL, AND PROVIDE EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE CONNECTION.
5. THE CONTRACTOR SHALL PAY FOR ALL WORK, EQUIPMENT, AND MATERIAL FURNISHED BY THE D.W.S.
6. MINIMUM VERTICAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 12-INCHES PROVIDED THE OTHER UTILITY IS CONCRETE JACKETED, AND 18-INCHES IF NO CONCRETE JACKETS ARE USED. IN ALL APPLICABLE INSTANCES, THE WATERLINES SHALL BE AT A GRADE HIGHER THAN OTHER UTILITIES. UTILIZE PERPENDICULAR CROSSINGS WHERE PRACTICABLE FOR WATERLINES, CENTER FULL PIPE LENGTHS AT UTILITY CROSSINGS WHENEVER POSSIBLE
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN WATERLINES AND OTHER UTILITIES SHALL BE 8-FEET (CLEAR SPACE – NOT CENTERLINE TO CENTERLINE) FOR ROAD RIGHT-OF-WAYS OF 60 FEET OR LESS, AND 10-FEET FOR ROAD RIGHT-OF-WAYS OF MORE THAN 50 FEET.
8. ALL WATER SYSTEM PIPELINES, 4-INCHES OR LARGER IN DIAMETER, SHALL BE DUCTILE IRON, PUSH ON JOINTS, CLASS 52, AND ALL PIPELINES SMALLER THAN 4-INCHES IN DIAMETER SHALL BE SOFT COPPER, TYPE "K", UNLESS OTHERWISE SPECIFIED.
9. PIPE CUSHION FOR COPPER SERVICE LATERALS SHALL BE NO. 4 MANUFACTURED FINE SAND.
10. METER BOXES FOR 5/8-INCH METERS PLACED OUTSIDE OF PAYMENT TO BE TYPE "B" PER STD DETAILS M1 & M2. METER BOXES FOR 1-INCH METERS OR FOR 5/8-INCH STD DETAIL M3.
11. RELOCATION OF EXISTING METERS SHALL BE DONE UNDER D.W.S. SUPERVISION. RELOCATION OF CUSTOMER SERVICE LINES TO RELOCATED METERS SHALL BE COPPER (TYPE "K") AND DONE BY THE CONTRACTOR. ALL WORK AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE RELOCATION WORK. EXISTING METER BOXES DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S COST. WHEN APPLICABLE, A DIELECTRIC UNION SHALL BE USED TO CONNECT THE COPPER PIPE TO THE CUSTOMER'S GALVANIZED IRON (G.I.) PIPE.
12. SOLDER (1/8-INCH DIA.) AND FLUX USED SHALL NOT CONTAIN MORE THAN 0.2% LEAD
13. LOTS REQUIRING A DEPARTMENT OF WATER SUPPLY APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL HAVE ONE. IT MUST BE INSTALLED ON PRIVATE PROPERTY IN ACCORDANCE WITH D.W.S. STANDARD DETAIL NO. V9 AND DEPARTMENTAL STAFF MUST APPROVE THE INSTALLATION BEFORE WATER SERVICE CAN BE STARTED.
14. WHERE WATER SHUT-OFF OF MORE THAN 3 HOURS BECOMES NECESSARY, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE A TEMPORARY BY-PASS LINE. THE DWS ENGINEER SHALL DETERMINE THE BY-PASS LINE SIZE. IF NECESSARY, THE DWS ENGINEER MAY REQUIRE A BY-PASS LINE, REGARDLESS OF THE EXPECTED SHUT-OFF PERIOD.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWINGS (AS-BUILT DRAWINGS) AND THE LICENSED ENGINEER SHALL CERTIFY THE DRAWINGS AS TO ACCURACY AND SUBMIT THE DRAWINGS AND AS-BUILT TRACINGS TO THE DWS.
16. AFTER JANUARY 4, 2014, ALL BRASS PRODUCTS MUST CONFORM TO NSF STANDARD 61 AND NSF STANDARD 372 OF THE SDWA, AND BE CERTIFIED AS "LEAD-FREE" BY THE MANUFACTURER. "LEAD-FREE" IS DEFINED AS THE ALLOWABLE LEAD CONTENT OF NOT MORE THAN 0.25% IN THE WETTED SURFACE. CERTIFICATION FROM THE MANUFACTURER MUST BE SUBMITTED TO THE DEPARTMENT OF WATER SUPPLY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY BRASS PRODUCT INSTALLED WITHOUT APPROVAL MUST BE REMOVED AT NO EXPENSE TO THE DEPARTMENT.
17. BOXED WATERLINE DETAILS BELOW TAKEN FROM THE WATER SYSTEM STANDARDS.



3 SCHEDULE OF COPPER FITTINGS  
C-3 NOT TO SCALE

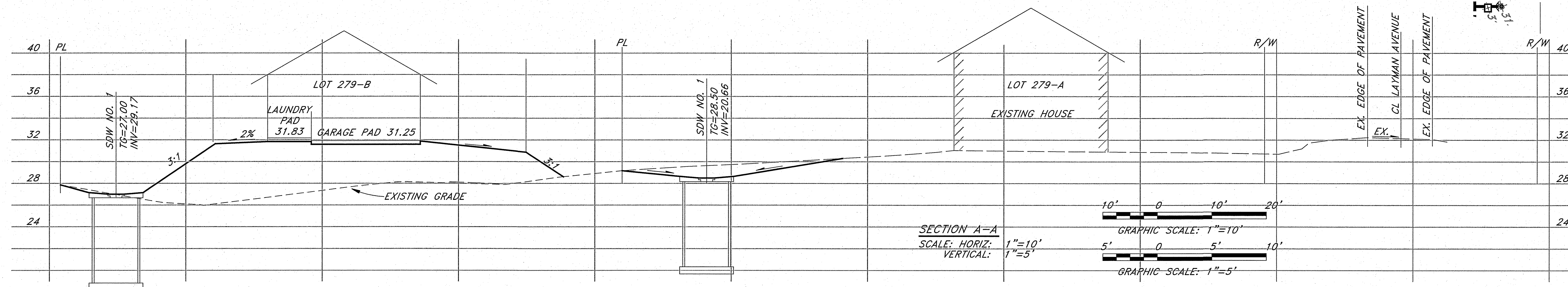






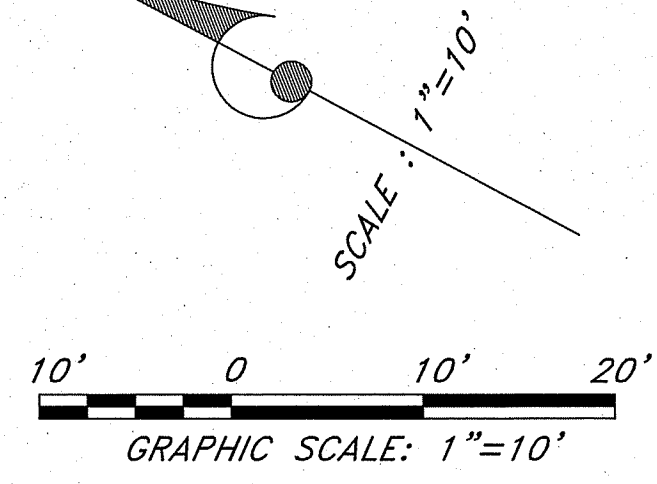
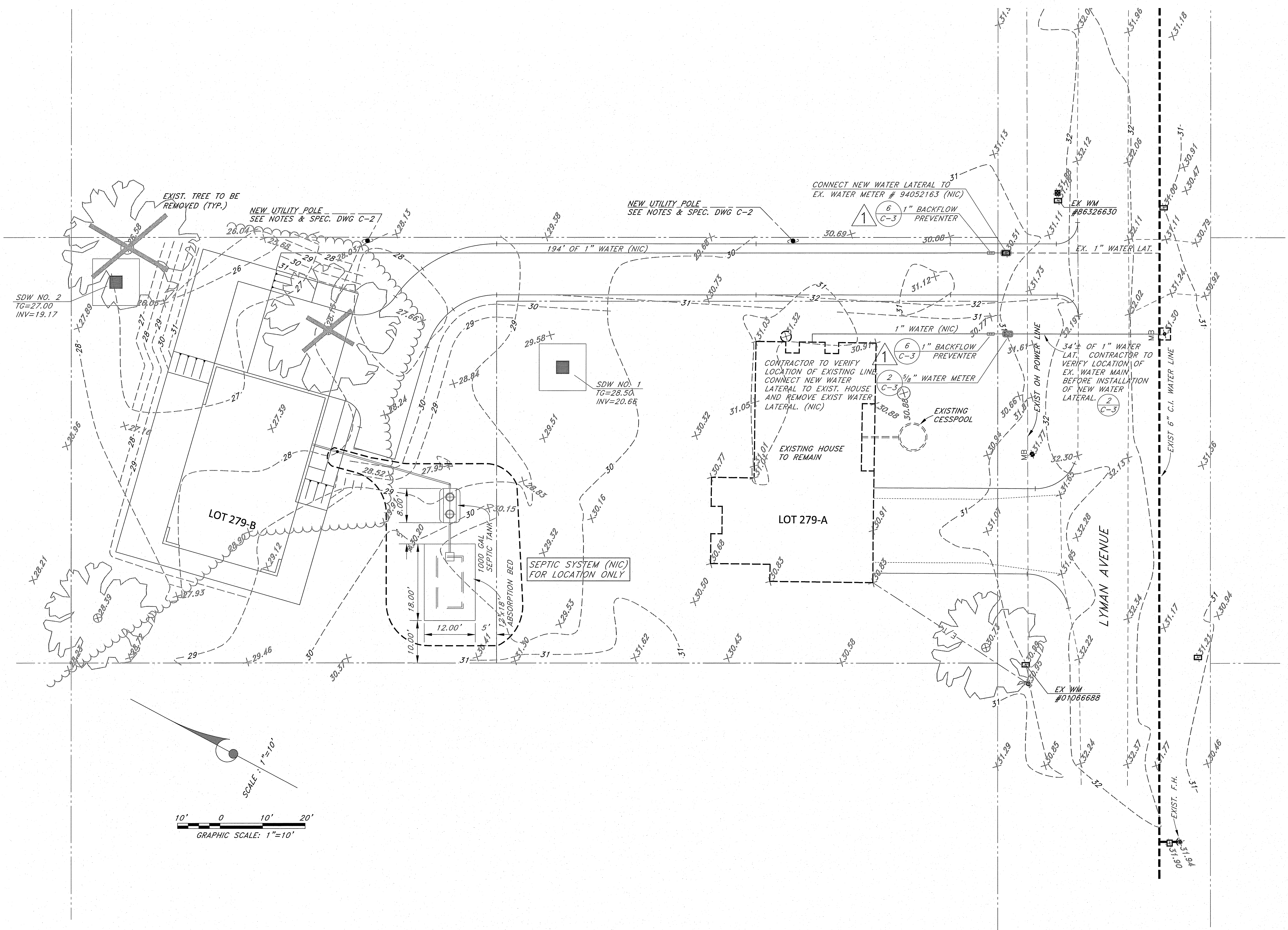
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C1	13.66	10.00	78.26	N11° 19' 39"E	12.62
C2	11.57	10.00	66.27	S60° 56' 03"E	10.93
C3	7.85	5.00	89.97	N16° 53' 14"E	7.07
C4	7.90	5.00	90.55	S73° 22' 35"E	7.11
C5	18.70	29.00	36.95	N46° 34' 30"W	18.38

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	9.25	29.00	18.28	N74° 11' 22"W	9.21
C7	11.50	10.00	65.89	S50° 22' 58"E	10.88
C8	7.85	5.00	90.00	N33° 00' 00"E	7.07
C9	10.96	17.00	36.95	N46° 34' 30"W	10.77
C10	10.96	17.00	36.95	N83° 31' 30"W	10.77



Project Title:	Sheet Title:
DESIGN BY: DRB	
DRAWN BY: DRB	
CHECKED BY: DL	
APPROVED BY: DL	
DATE: SEPT. 2015	
SCALE: AS NOTED	
FILE No. W1302.47	
DRAWING No.	
C-4	
SHEET No.	
5	
OF 9 SHTS.	





NO.	DATE	DWG.	CHK.	REVISIONS
1	4/5/2016	3, 4, 5, 7, & 8	DL	INSTALL BACKFLOW PREVENTER

DATE	PRINTS TO

This work was prepared by me or under my direct supervision and the project will be under my observation.  
Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Civil & Structural Engineers  
101 Silva Street, Suite 201 Hilo, Hawaii 96720-4755  
Telephone: (808) 935-4677 Fax: (808) 935-2070

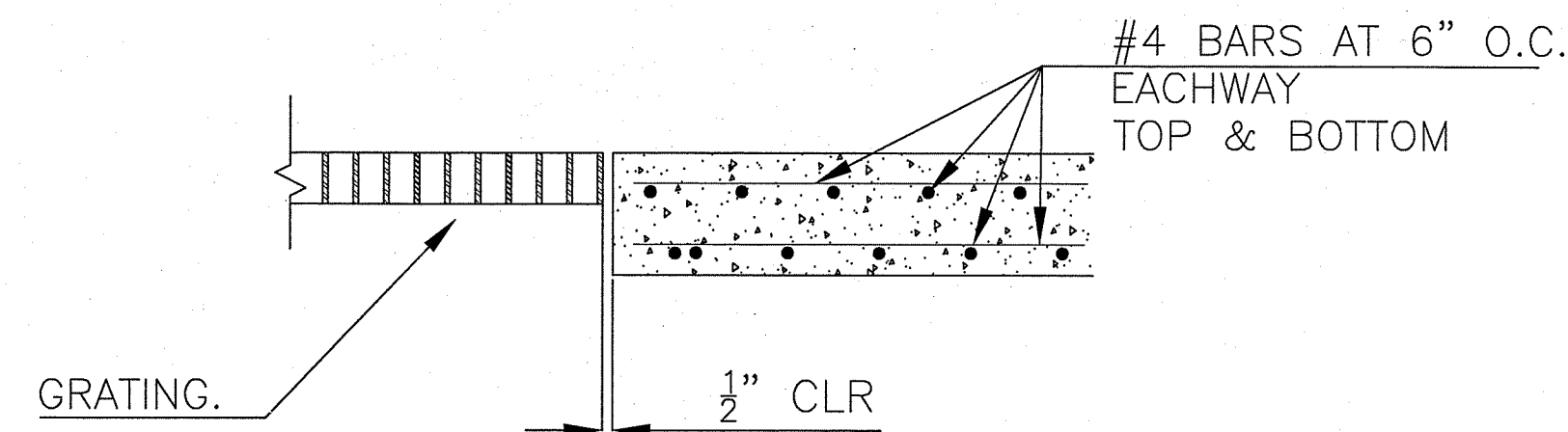
**WRSA**  
Wesley R. Segawa and Associates, Inc.  
Commitment to Quality Performance & Value

**Project Title:** KEAUKAHA TRACT 1 IMPROVEMENTS  
**Sheet Title:** LOTS 279-A & 279-B UTILITY PLAN

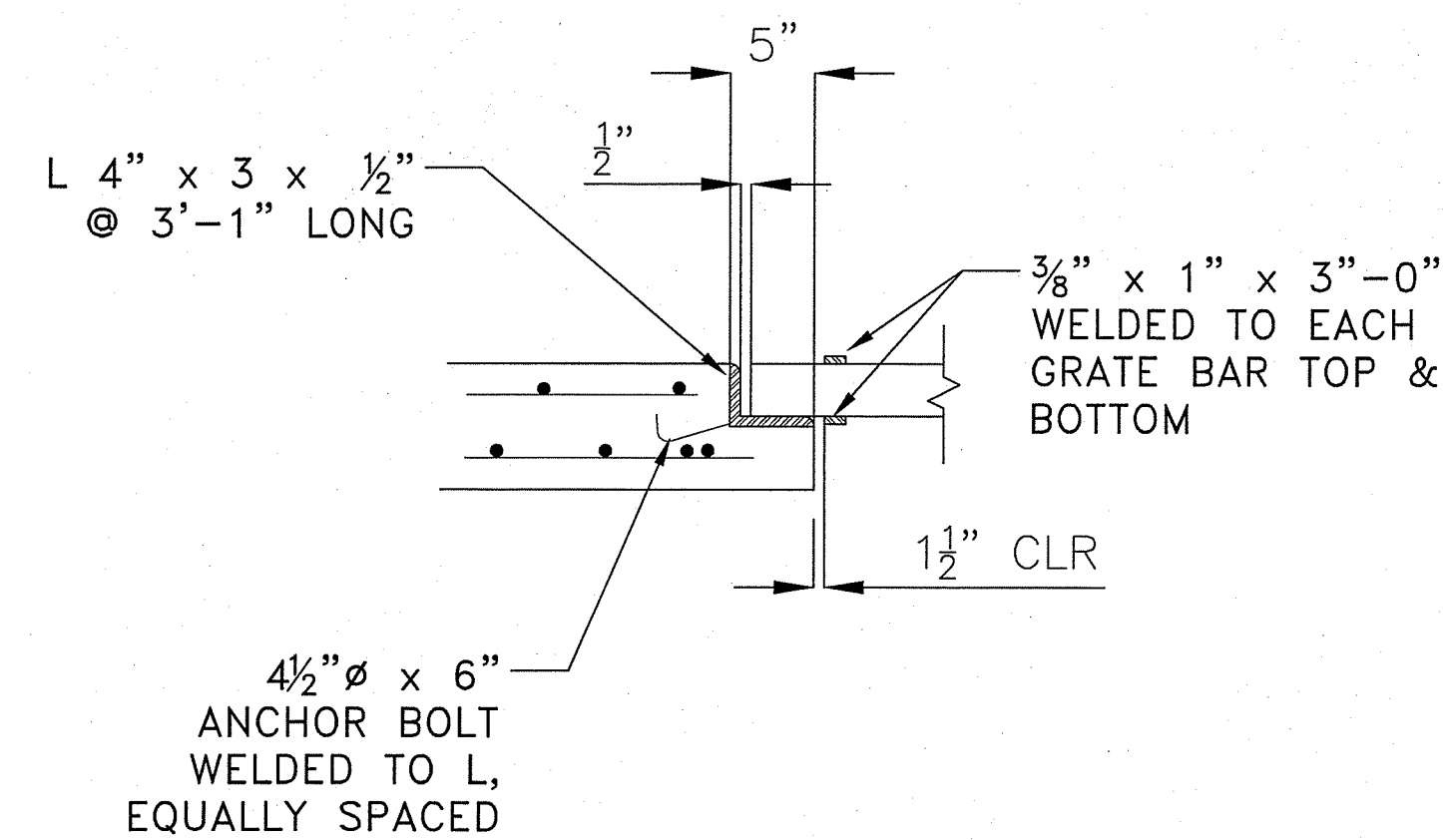
DESIGN BY:	DRB
DRAWN BY:	DRB
CHECKED BY:	DL
APPROVED BY:	DL
DATE:	SEPT. 2015
SCALE:	AS NOTED
FILE NO.	W1302.47

DRAWING No.	C-5
SHEET No.	6
OF	9
SHTS.	

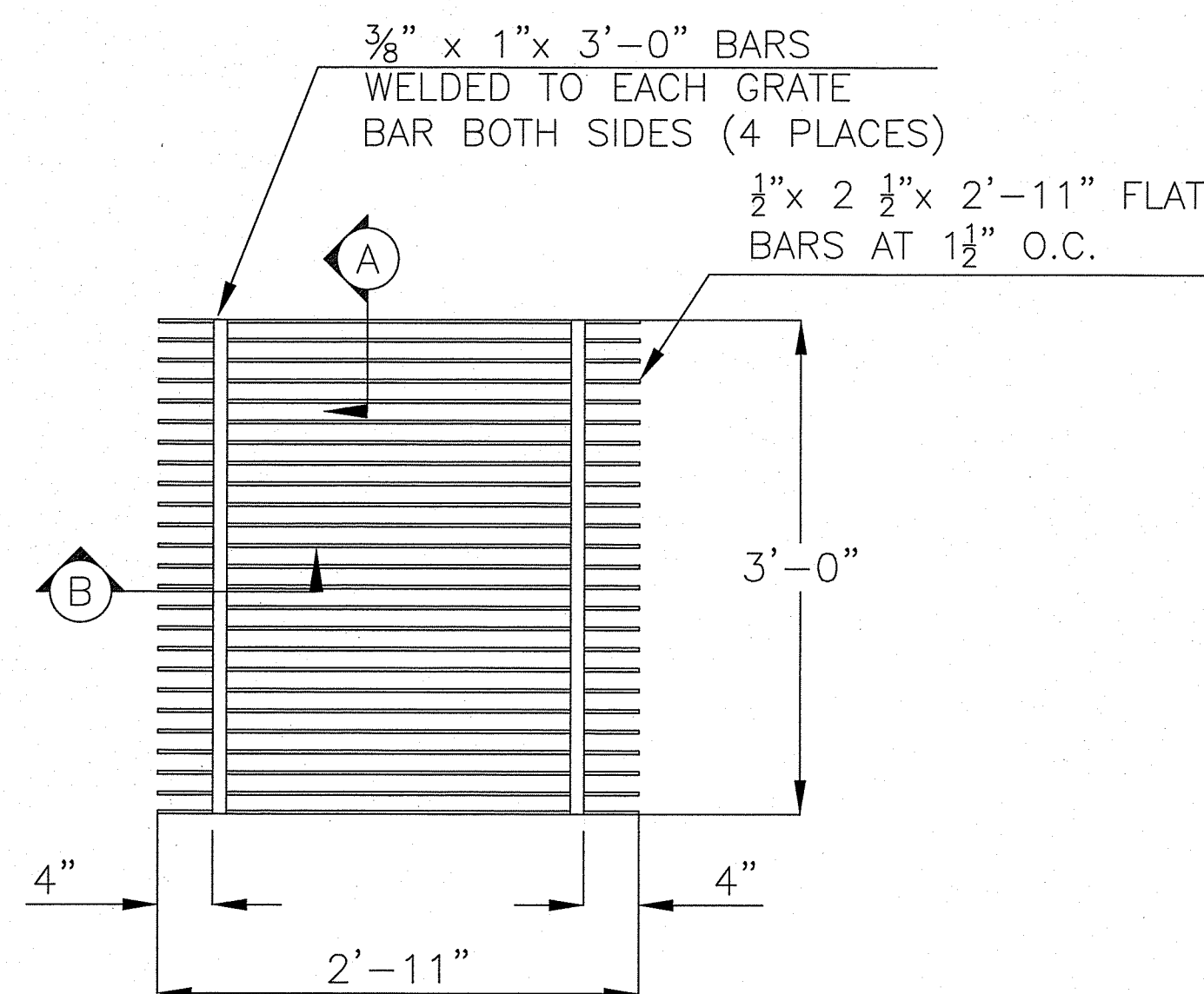




SECTION A-A  
NOT TO SCALE



SECTION B-B  
NOT TO SCALE



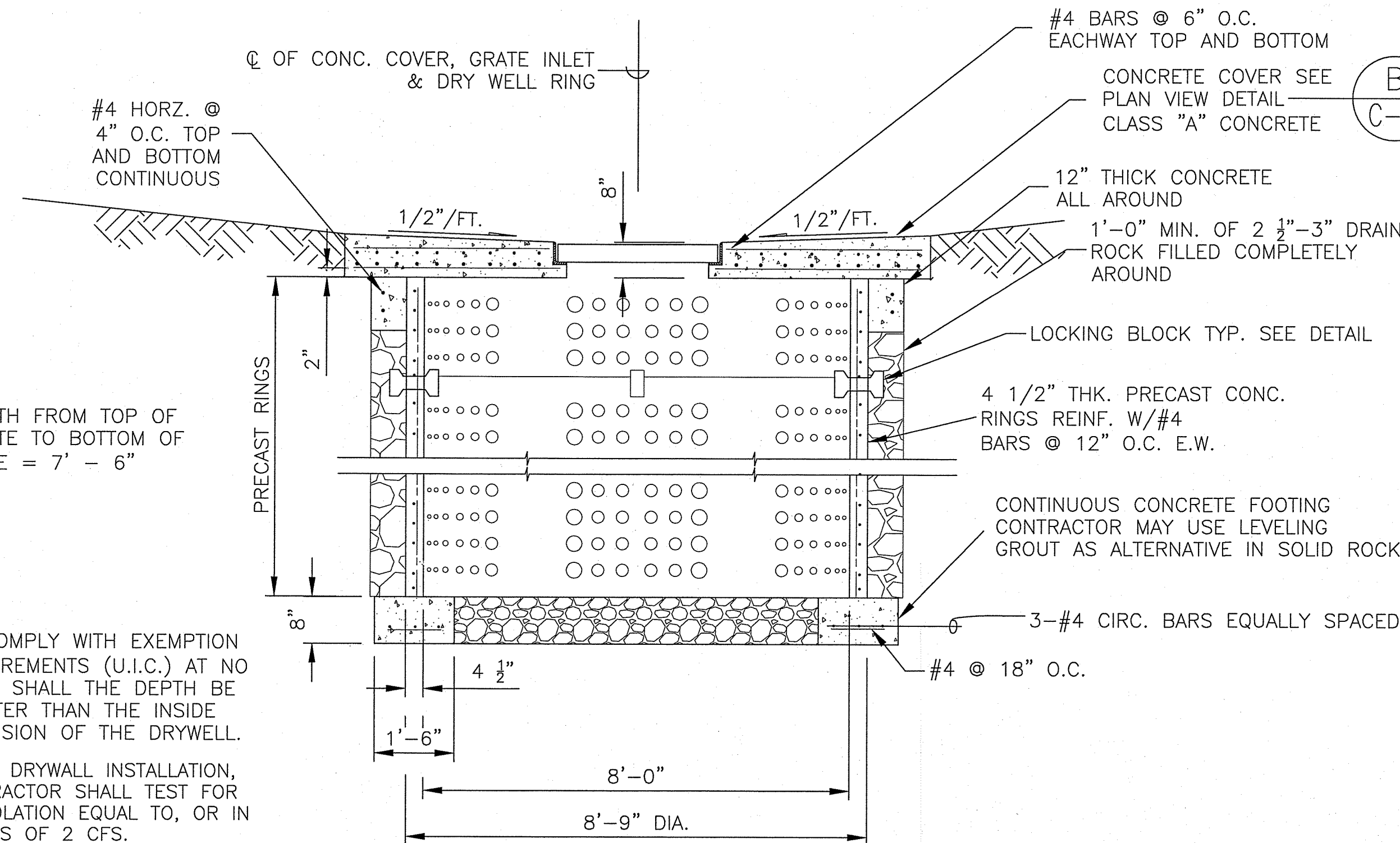
GRATING  
NOT TO SCALE

(A) DRYWELL GRATE DETAIL  
C-6 NOT TO SCALE

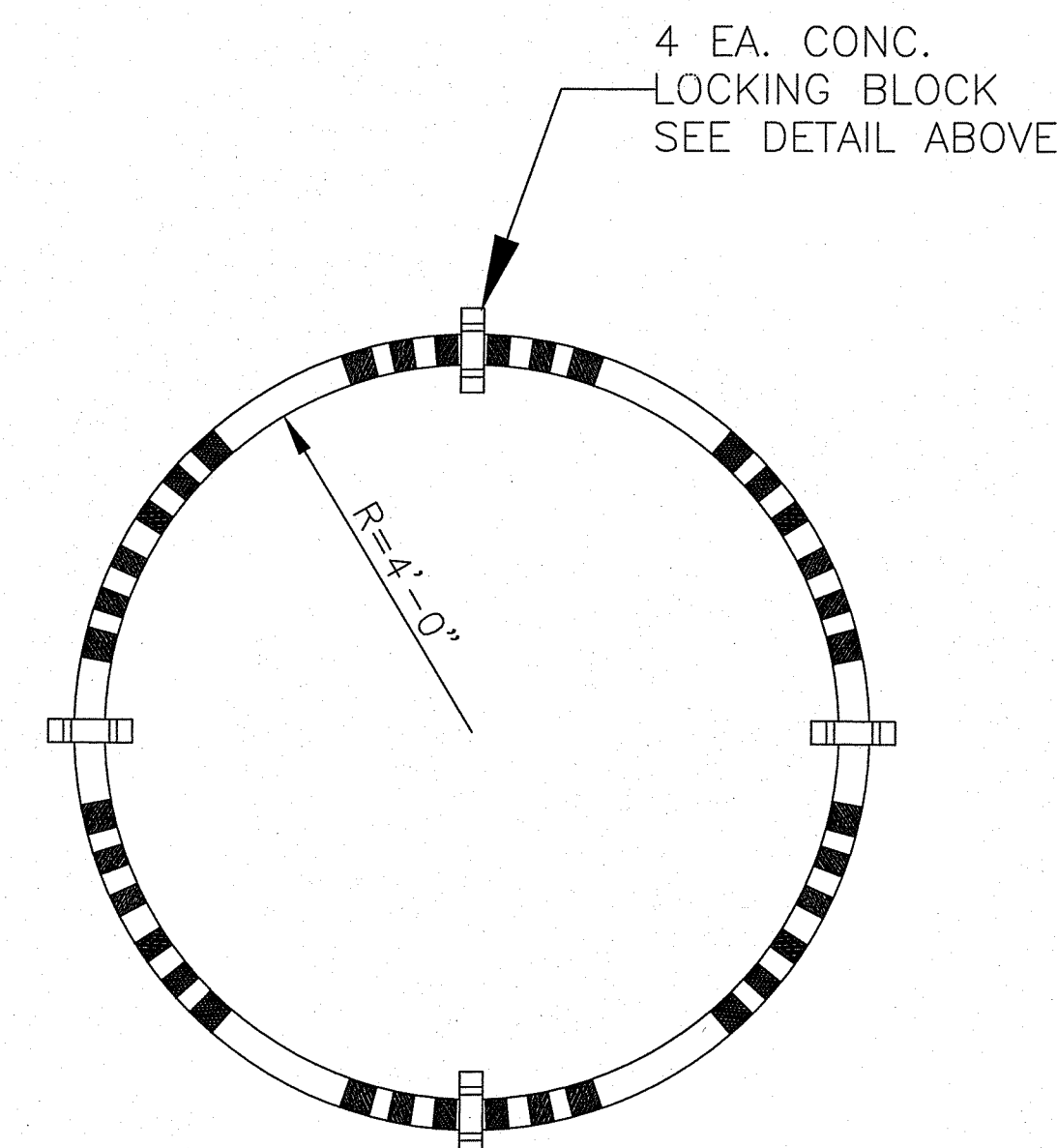
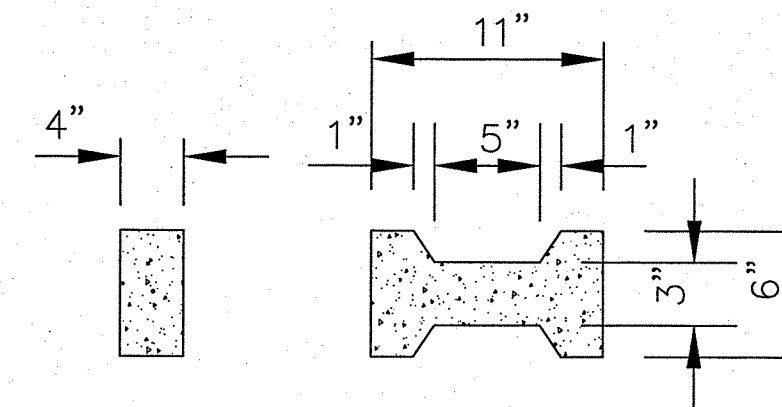
DEPTH FROM TOP OF  
GRATE TO BOTTOM OF  
HOLE = 7' - 6"

NOTES:

1. TO COMPLY WITH EXEMPTION REQUIREMENTS (U.I.C.) AT NO POINT SHALL THE DEPTH BE GREATER THAN THE INSIDE DIMENSION OF THE DRYWELL.
2. AFTER DRYWELL INSTALLATION, CONTRACTOR SHALL TEST FOR PERCOLATION EQUAL TO, OR IN EXCESS OF 2 CFS.

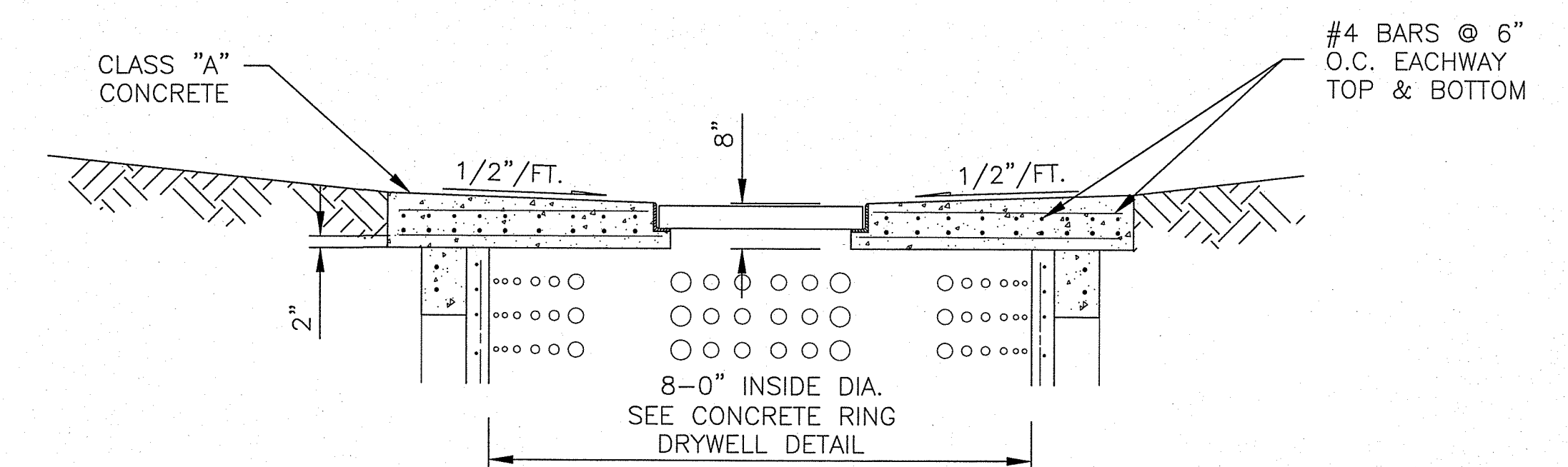


CONCRETE RING DRYWELL  
NOT TO SCALE

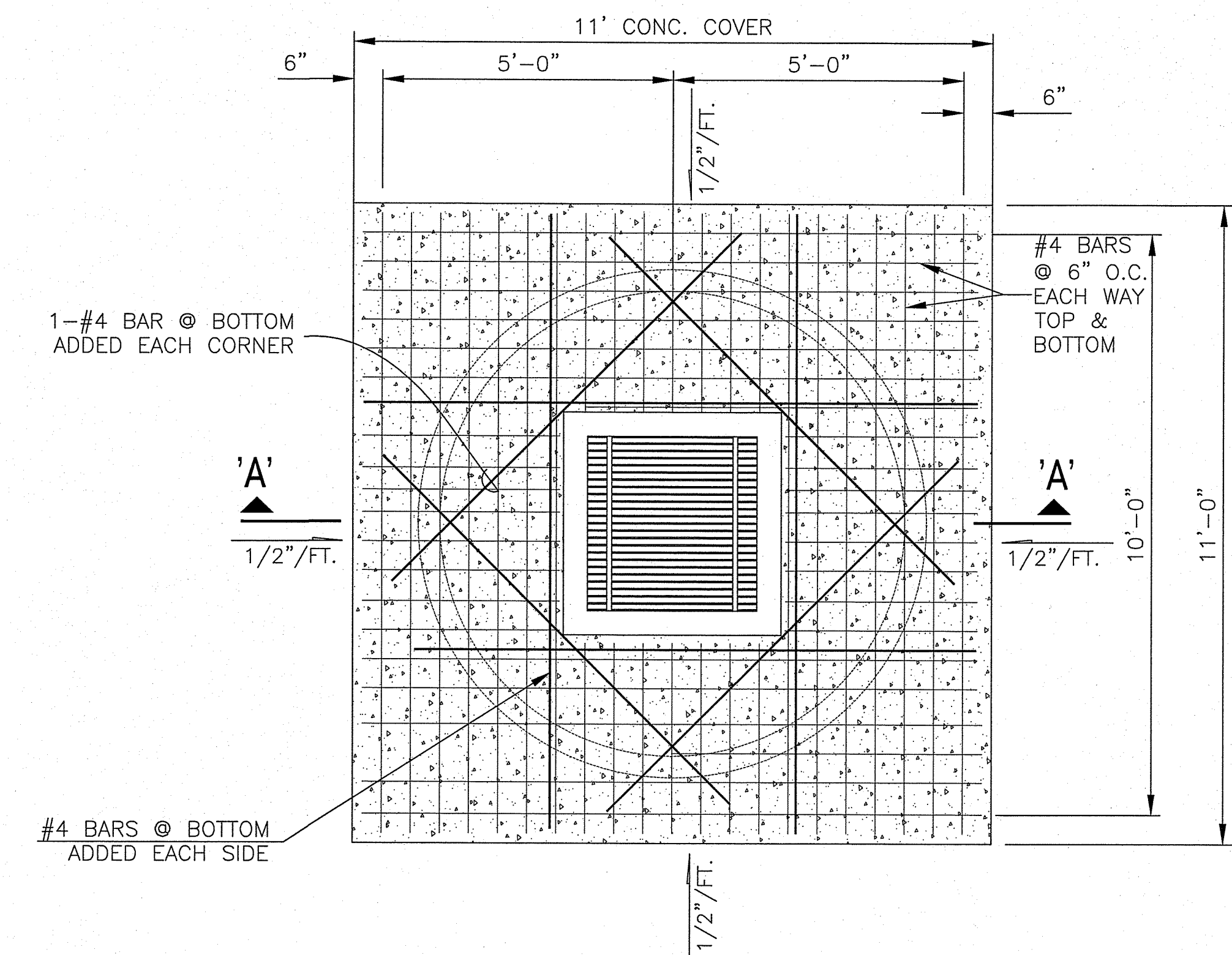


TYPICAL RING CROSS SECTION  
NOT TO SCALE

(B) CONCRETE DRYWELL DETAIL  
C-6 NOT TO SCALE



SECTION A-A  
NOT TO SCALE



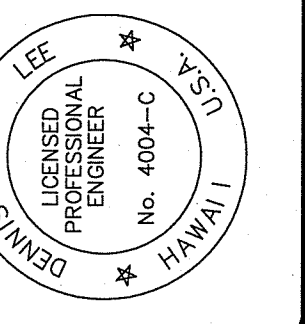
PLAN  
NOT TO SCALE

NO.	DATE	DWG. CHK.	REVISIONS
1			
2			
3			
4			
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6			
7			
8			
9			
10			

This work was prepared by me or under my direct supervision and to the best of my knowledge and belief it conforms to the requirements of the applicable laws and regulations of the State of Hawaii.

Exp. 04-30-16

Wesley R. Sagawa & Associates, Inc.



**WRSA**

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Project Title: KEAUKAHA TRACT 1 IMPROVEMENTS

Sheet Title: LOTS 279-A & 279-B SHALLOW DRYWELL DETAILS

DESIGN BY: DRB

DRAWN BY: DRB

CHECKED BY: DL

APPROVED BY: DL

DATE: SEPT. 2015

SCALE: AS NOTED

FILE No. W1302.47

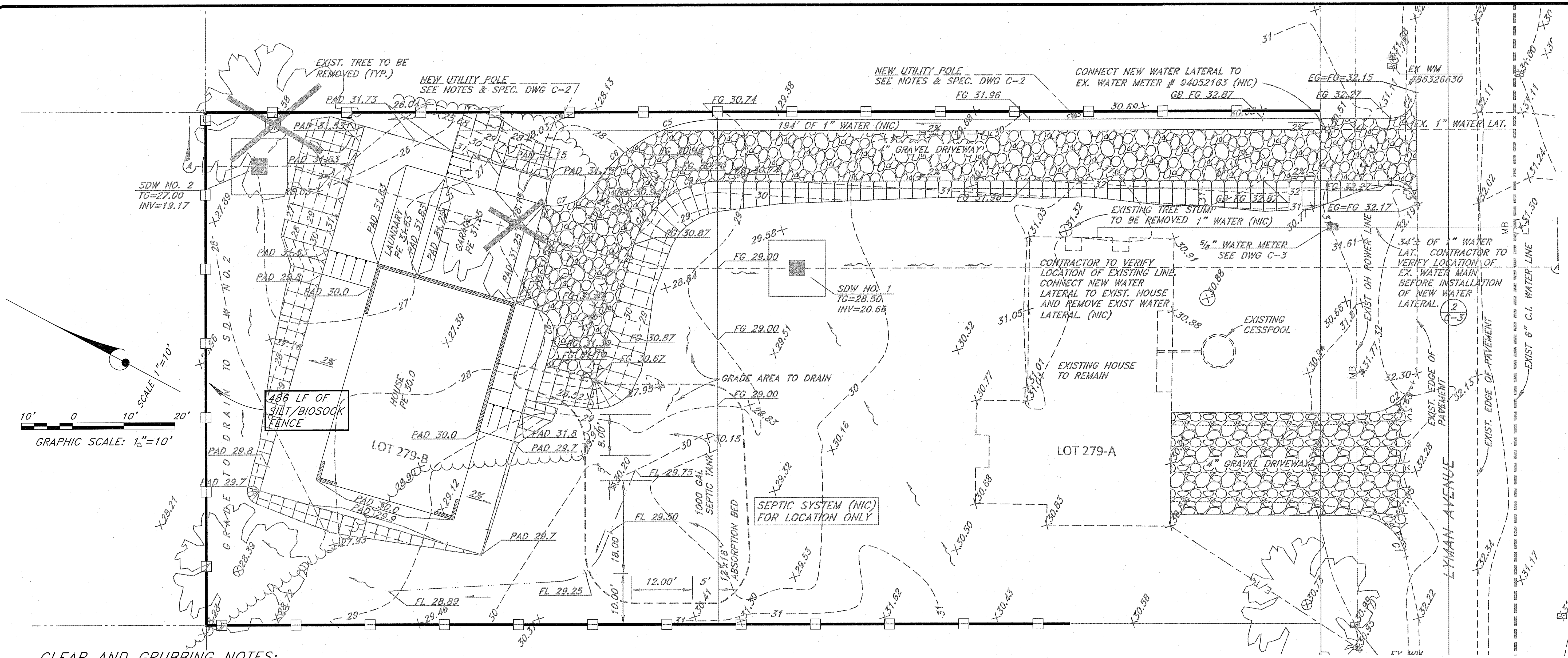
DRAWING No.

C-6

SHEET No. 7

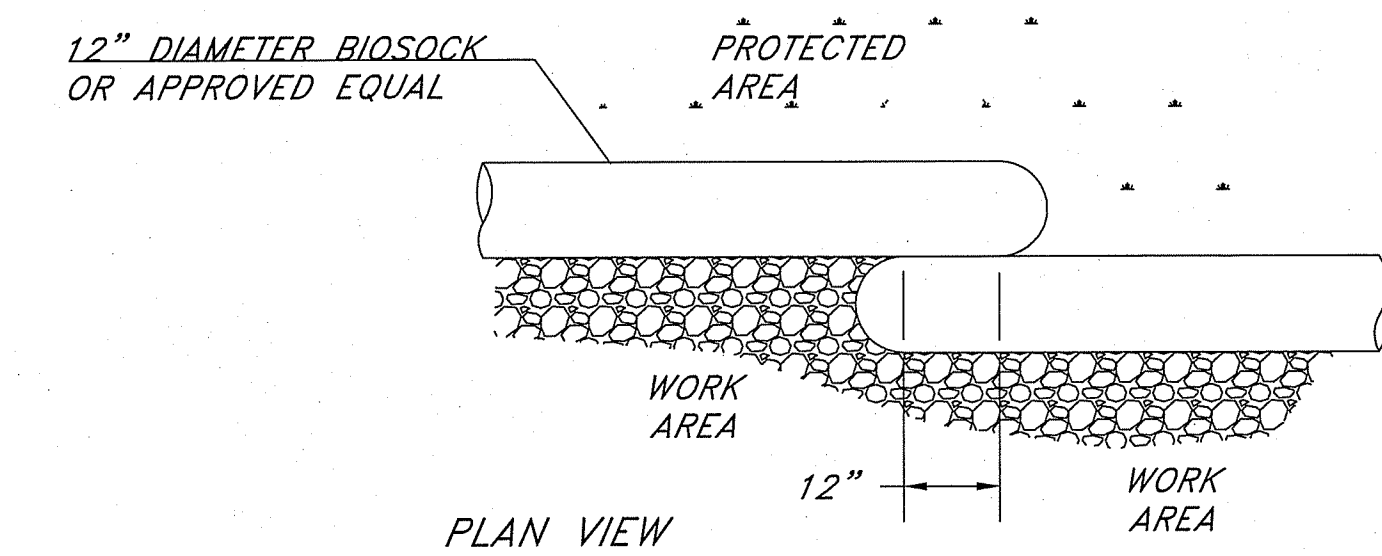
OF 9 SHTS.





### CLEAR AND GRUBBING NOTES:

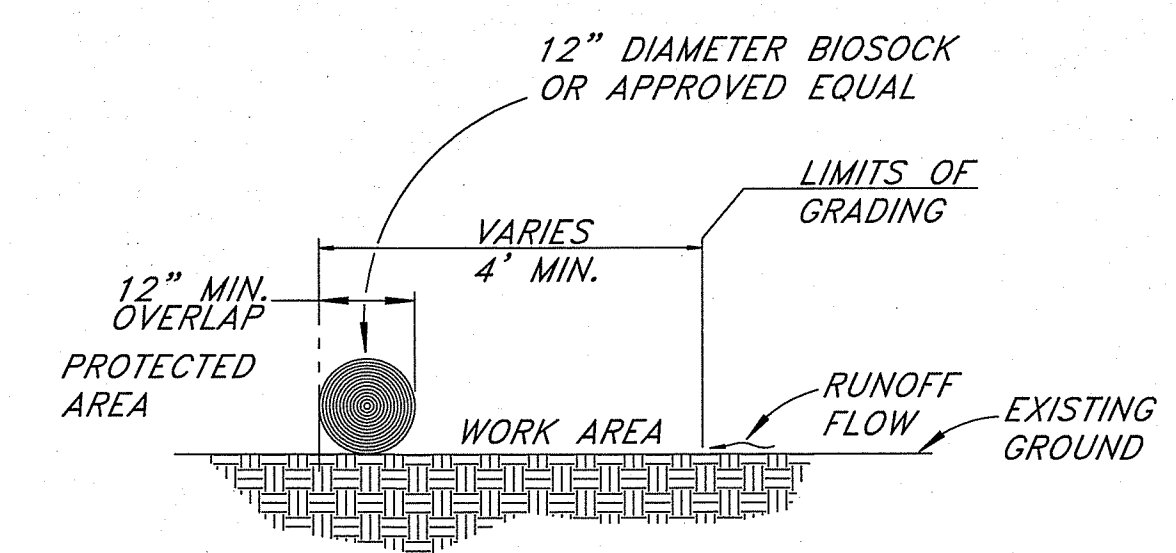
1. CLEAR ALL SURFACE AREAS AND GRUB AREAS BELOW NATURAL SURFACES FOR THE DESIGNATED LOTS. ENSURE THAT ALL BMP MEASURES ARE IN PLACE BEFORE CLEARING AND GRUBBING STARTS.
2. CLEARING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED SURFACE MATERIALS, SUCH AS TREES, BRUSH, GRASS, WEEDS, DOWNED TREES, AND OTHER MATERIAL.
3. GRUBBING IS DEFINED AS REMOVING AND DISPOSING OF ALL UNWANTED VEGETATION MATTER FROM UNDERGROUND, SUCH AS STUMPS, ROOTS, BURIED LOGS, AND OTHER MATERIAL.
4. DEBRIS IS DEFINED AS USABLE OR UNWANTED MATERIAL PRODUCED BY CLEARING AND GRUBBING.
5. CLEARING AND GRUBBING ALSO INCLUDES HERBICIDE MAINTENANCE. HERBICIDE MAINTENANCE INCLUDES APPLICATION OF WEED CONTROLLING CHEMICALS, APPLIED ONCE PER MONTH FREQUENCIES FOR ONE YEAR (12 MONTHS) DURATION. THE SELECTED HERBICIDE IS ROUND UP (GLYPHOSATE) OR AN EQUAL HERBICIDE CHEMICAL, TO BE APPROVED BY DHHL. THE HERBICIDE DOSAGE USED IN ALL APPLICATIONS SHALL BE FOR DESTROYING BROADLEAF WEEDS.
6. LIMITS - CLEARING AND GRUBBING WORK IS INTENDED TO BE WITHIN THE HOUSE LOT PARCEL. ANY WORK OUTSIDE OF THE HOUSE LOT PARCEL REQUIRES PRIOR APPROVAL BY DHHL AND THE AFFECTED ADJACENT LEASE HOLDER.
7. REMOVAL AND DISPOSAL OF MATERIAL - REMOVE MATERIAL AND DEBRIS, AND DISPOSE OF AT AN AUTHORIZED DISPOSAL SITE. OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNERS AND GOVERNMENT AUTHORITIES FOR DISPOSAL LOCATIONS OUTSIDE ROAD-RIGHT-OF-WAY LIMITS. LEAVE AREAS WITH NEAT AND FINISHED APPEARANCE.



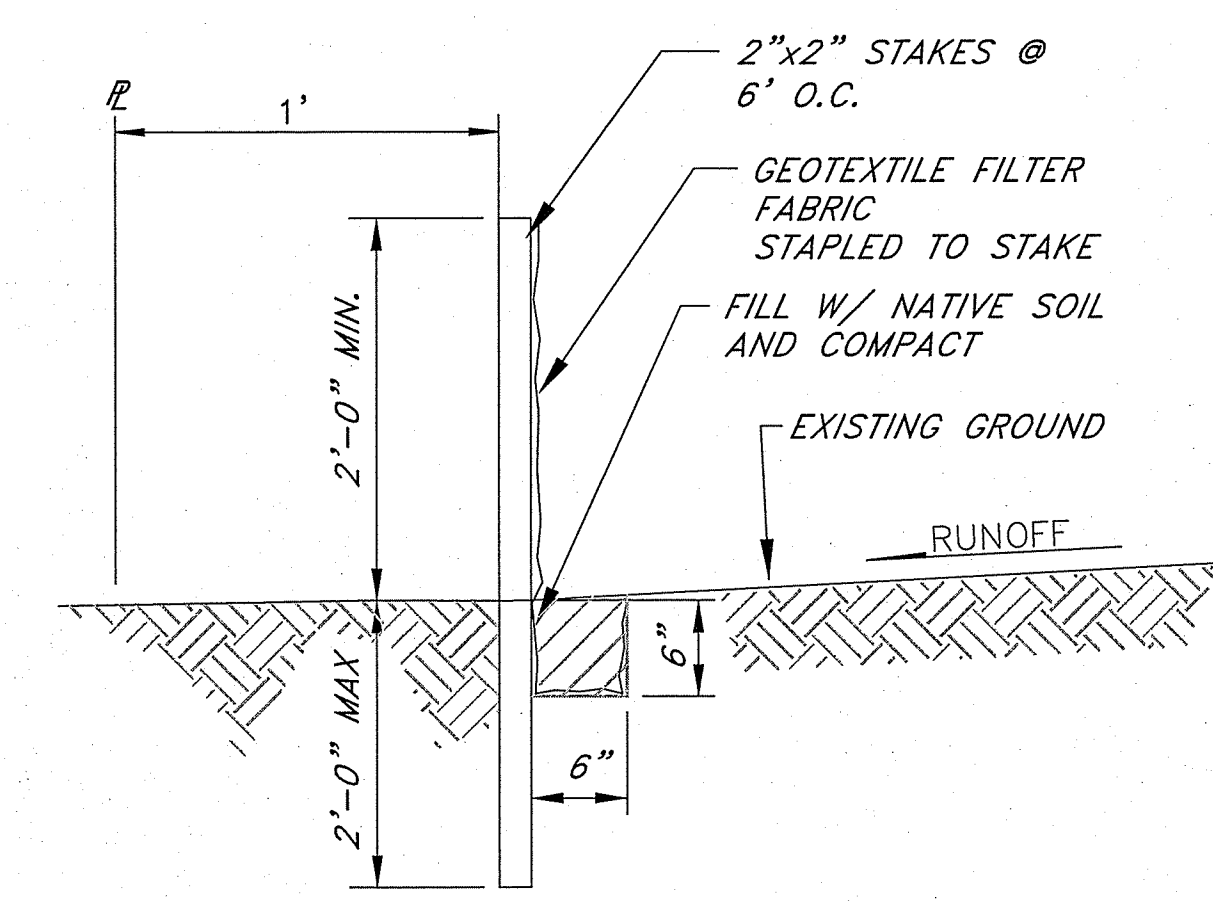
**BIOSOCK DETAIL (12" DIA)**  
NOT TO SCALE

### LEGEND:

SILT FENCE/BIOSOCK



**ELEVATION VIEW**



### SILT FENCE NOTES:

BIOSOCK MAYBE USED IN LIEU OF SILT FENCE.

THE CONTRACTOR SHALL INSTALL SILT FENCES OR BIO-SOCK PRIOR TO CONSTRUCTION.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND ESTABLISHED.

AT THE END OF GRADING OPERATIONS, EXISTING CB'S AND DMH'S SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE CB'S AND DMH'S ARE PROHIBITED.

**SILT FENCE DETAIL**  
NO SCALE

### EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE RULES RELATING TO SOILS EROSION STANDARDS AND GUIDELINES, APRIL 1999, BY THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PLANNING AND PERMITTING FOR BEST MANAGEMENT PRACTICES.
2. THE CONTRACTOR SHALL STABILIZE THE CONSTRUCTION SITE AT ALL POINTS OF EGRESS AND INGRESS WITH A 12' WIDE X 20' LONG X 8" DEEP SECTION OF NO. 2 CRUSHED ROCK.
3. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS OR OTHER AREAS OF CONCENTRATED FLOWS. SEDIMENT TRAPPING DEVICES SUCH AS FENCES, TRAPS, BASINS OR BARRIERS SHALL BE USED AROUND THE BASE OF ALL STOCKPILES.
4. DUST CONTROL SHOULD BE APPLIED TO REDUCE DUST EMISSIONS. THE CONTRACTOR, AT THEIR OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL".
5. SURFACE FLOW FROM ABOVE AN EXPOSED SLOPE SHALL NOT BE ALLOWED TO FLOW OVER THE SLOPE WITHOUT PROTECTION. SLOPE PROTECTION SHALL BE USED ON AREAS WITH SLOPES GREATER THAN 50% AND ON AREAS OF MODERATE SLOPES THAT ARE PRIME TO EROSION.
6. ALL STORM DRAIN INLETS ON SITE, AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE.
7. TEMPORARY STABILIZATION IS NOT REQUIRED WHEN THE DISTURBED AREA WILL BE WORKED WITHIN A 14 DAY PERIOD. STABILIZATION IS REQUIRED FOR DISTURBED AREAS AT FINAL GRADE AND FOR THOSE AREAS THAT WILL NOT BE WORKED WITHIN A 14 DAY PERIOD.
8. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY PERMANENTLY STABILIZED.

REVISIONS		PRINTS TO	
NO.	DATE	DATE	DATE
1			
2			

This work was prepared by me or under my supervision and construction of this project was under my observation.  
Exp. 04-30-16

**Wesley R. Segawa & Associates, Inc.**  
Professional Engineer  
No. 4004-C  
HAWAII

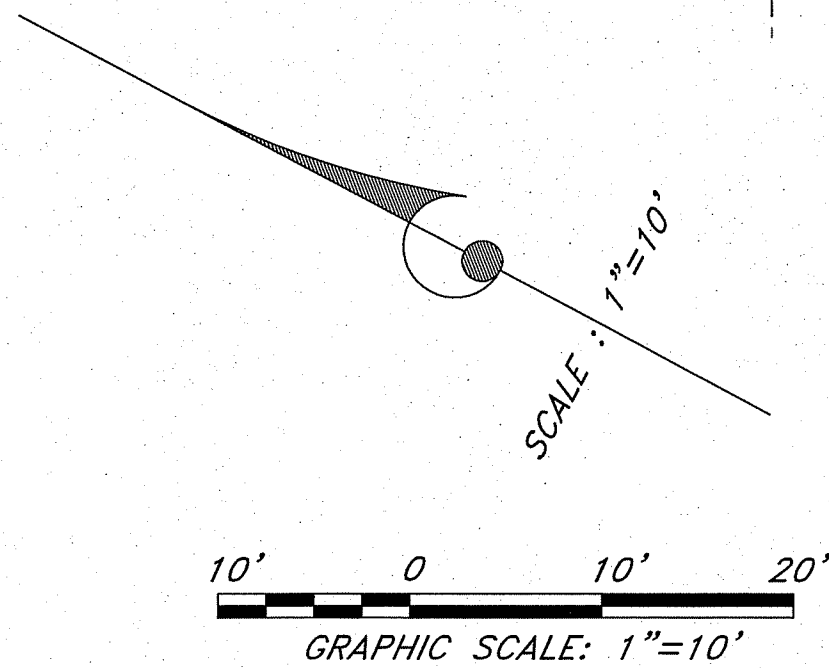
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Project Title: **KEAUKAHA TRACT 1 IMPROVEMENTS**  
Sheet Title: **LOTS 279-A & 279-B EROSION CONTROL (BMP) PLAN**

DESIGN BY: DRB  
DRAWN BY: DRB  
CHECKED BY: DL  
APPROVED BY: DL  
DATE: SEPT. 2015  
SCALE: AS NOTED  
FILE NO. W1302.47

DRAWING No. **C-7**  
SHEET No. **8**  
OF **9** SHTS.





Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C6	9.25	29.00	18.28	N74° 11' 22"W	9.21
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